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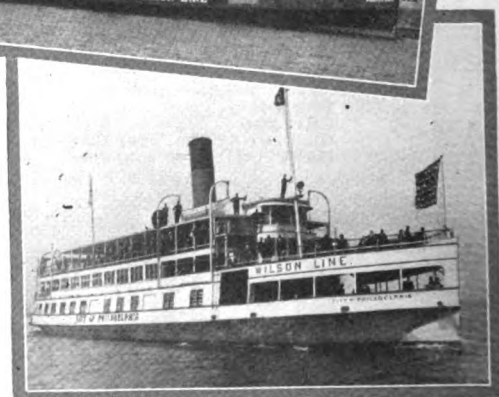
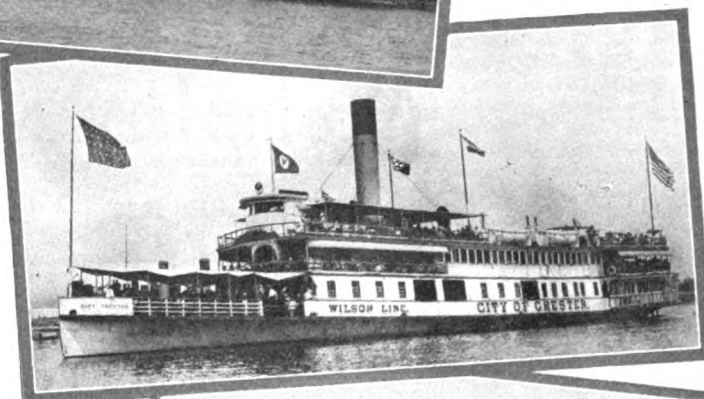
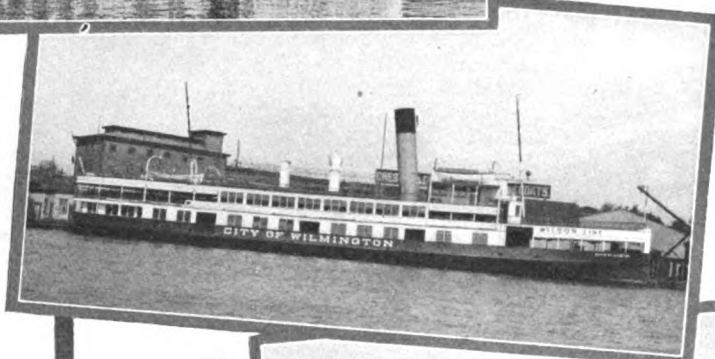
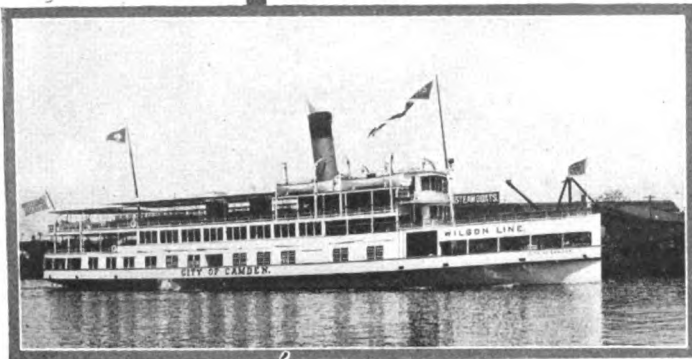
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# Marine Review

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## German Shipping in the New Year

Teutons Make Headway in Regaining Marine Strength  
but Reports of Phenomenal Recovery Are Misleading

BY H. COLE ESTEP,  
*European Manager, Marine Review*

**H**AMBURG is the home of a German shipowner of the old school who before the war was engaged in the lucrative trade between North sea ports, the East and Australia. He is typical of the aggressive, shrewd, practical men who made the German mercantile marine one of the most important in the world. Therefore, his comment on the present state of German shipping is both succinct and informative.

"We have about 600,000 tons of ships at present," he said, "or about a tenth of our prewar fleet. We were brought low by the peace treaty. In fact, the war and its aftermath knocked us out clear. We have only recently been able to hobble back into the ring, and we are still using a crutch.

"This crutch," and the old Teuton grinned, "was made in the United States.

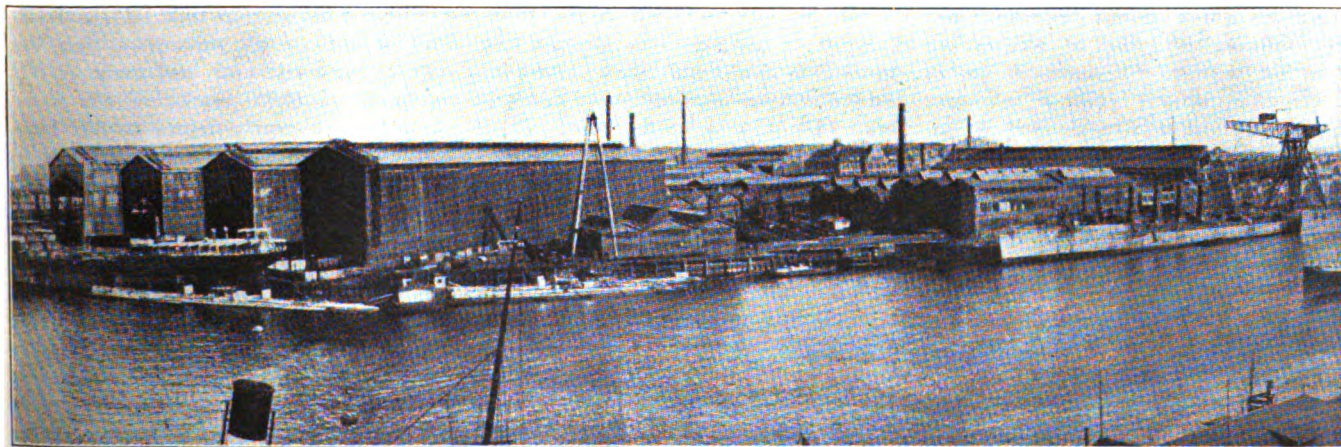
*FEW Americans have been able to gain a clear insight into the marine activities of the Germans since the war. Reports have been common reciting the tremendous activity of the German shipyards. Visible evidence of returning strength has been given by the occasional German vessels reaching American ports.*

*Lately, it has been customary to interpret these signs as indicative of a suddenly regained and irresistible strength.*

*In this article, the European manager of MARINE REVIEW interprets the economic meaning of German marine activities. He points out very clearly that American shipping will find England, not Germany, the major competitor.*

American steamers are the prop of German overseas commerce at the present time. America has over twice as many

ships as we had before the war, and we're teaching some of the owners how to run them. For the present the Americans have the ships and we Germans the organization and experience." The old shipowner now became exceptionally candid, for he was not talking to an American but to a close friend who lived in a nearby neutral country. "What we intend to do is to pick the Americans' pockets," he said, "and of course they expect to acquire our brains—our knowledge and experience in the shipping game. But it is much easier to pick an open pocket than a closed brain. We Germans are not going to give the Americans any more benefit from our knowledge and experience than is consistent with our ultimate object, which is the development and eventual supremacy of German, not American shipping. The time will come when we will kick



GENERAL VIEW OF THE GERMANIAWERFT, KRUPP'S SHIPYARD AT KIEL. ALLIANCES OF SHIPPING, SHIPYARD AND MANUFACTURING COMPANIES ARE QUITE COMMON



the crutch out from under us and once more stand firmly on our own feet."

A recent tour of German ports confirms this statement. The only ships in which the Germans have any real interest are those that fly the German flag. The alliance with certain American shipping interests is apparently a temporary marriage of convenience. It behooves the American companies interested in these combinations to make the most of them while they last. For German shipping is coming back. German steamers are once more seen in the ports of the world, and the song of the riveting hammer is again vibrant along the North sea coast. The renaissance of the German mercantile marine is one of the outstanding phenomena of the past year.

### Brilliant By Contrast

Against the complete eclipse of 1919, German shipping activity again shines brilliantly. The contrast between present conditions and those of two years ago is startling, so startling in fact that it is easy to over-rate the situation and exaggerate the revival which has taken place. It is true that much has been accomplished.

The entire German fleet today of about 575,000 tons is about a third of the prewar tonnage owned by the Hamburg-American line alone. Where there were ten German ships on the high seas in 1913, today but one plows its solitary way. In five years, says the level headed director general of the Hamburg-American, Dr. Wilhelm Cuno, there will be three or four German ships where there is one today, but still only a third as many as before the war. This means commendable progress tending toward world stability and business recovery, but it does not mean that Germany is going to work any such miracle as German propagandists would want one to believe. Nor does the future course of German shipping lie exclusively through zones of fair weather. There are a few storms brewing. German shipping is going to recover but it is not destined to dominate, nor is it going to achieve even a secondary position without a struggle and a few setbacks now and then. Germans are courageous, able and energetic business men, but they are no more omnipotent in the commercial sphere in 1922 than they were in the military arena seven years ago.

However, a few unvarnished facts should afford the best medium for setting forth the present situation in German shipping. In 1913 there were 4935 oceangoing ships under the German flag with an aggregate tonnage of 5,240,000 gross. Since then about 4700 vessels

of 5,000,000 tons were either lost in the ordinary way, destroyed in the war, seized in foreign harbors or surrendered according to the peace treaty. Every ship over 1600 tons was given up and half those under this figure, together with a large amount of dock and harbor equipment, such as floating cranes, etc.

### Not Up to Prewar Speed

The result was that in 1920 the German merchant fleet was reduced to about 200 small vessels, suitable for trading only in the Baltic, with an aggregate tonnage of around 200,000. In the past two years, this fleet has been more than doubled and today stands at about 575,000 gross tons distributed among about 350 vessels. The average size of the ships is still small but is rapidly rising, most of the current construction being confined to ships between 7500 and 12,000 tons each.

Before the war the average monthly capacity of German shipyards was about 70,000 gross tons. In 1919 the actual construction dropped to 2000 tons a month. In 1920 it recovered to 20,000 tons, and in 1921 to 42,000 tons. The rate of new ship construction does not seem likely to go above this figure in the immediate future. It is held down below prewar capacity by the raw material situation. This leads directly back to the German blast furnaces and rolling mills. They are producing at only about 50 or 60 per cent of capacity, due to the coke situation and the necessity for importing large tonnages of foreign ore which must be paid for with marks worth half a cent apiece. The collapse of the mark also makes it extremely difficult for German shipyards to purchase foreign steel, even if the owners were disposed to take this course. So the German shipbuilding industry is limited by the supply of steel, coal and other factors to about half capacity. During 1921, Germany launched 242 vessels of 509,064 gross tons.

### What Will Be Done This Year

So it is probable that German shipyards will not build much more than half a million tons of new ships this year. Of this, under the treaty, 200,000 tons must be surrendered to the allies. But with idle tonnage in every port in Europe and British shipyards on a 25 per cent basis, this claim is not likely to be enforced in the future any more than it was last year when half the tonnage was remitted. Therefore, assuming 100,000 tons surrendered, and taking account of losses and depreciation, as well as building for foreign account, the German mercantile marine will probably be augmented in 1922 by about 300,000 tons, bringing the aggre-

gate by the end of the year up to well over three-quarter million gross tons.

Although an increment of 300,000 tons this year represents a much more modest achievement than is indicated by the boasting of the pan-Germans, it will probably fully meet the necessities of the situation. Not only is there a limit to the speed with which German shipping may be redeveloped, but being essentially an international business, it feels the recession in the world's trade just like the shipping of every other nation.

### Boom Days Are Vanishing

Just as in iron and steel and other lines, the feverish boom which characterized German shipping and shipbuilding in the latter part of 1921 now shows signs of abating. The reaction resulting from unlimited currency inflation is being felt here as elsewhere throughout the German business fabric. Buyers see deflation ahead and a chance perhaps to get cheaper ships later on. So they are no longer falling over each other for the purpose of placing orders with the shipyards regardless of price.

Wages in the shipyards too are showing a tendency to get out of hand. In 1920, five marks an hour was the rule for skilled men. Last summer it had risen to eight marks. Then it became 10, later rose to 12, and is now between 15 and 18 marks an hour. In November 64 marks a day represented about 20 cents; today (January) 120 marks represents 65 cents, so the gold value of German wages has been increasing lately even faster than the paper value.

As a result of all this inflation, with labor at 15 marks an hour and ship plates at 5000 marks a ton, equivalent to 1.25 cents a pound, the cost of building ships in Germany has advanced tremendously in the past few months, particularly since the middle of October. Not long ago it was reported in the United States that the Germans were building ships for 7000 marks a ton, or about \$22 at that time. It is doubtful if their costs ever were that low at any time last year, and early in 1922 a figure of 10,000 marks, or \$55 a ton would more nearly represent the facts.

Vessels which Germany builds this year will cost her almost as much as those constructed in other countries. There is certainly not at the present time the wide margin between cost of construction in Germany and Great Britain or the United States that has been talked about recently. In fact, the gap between German shipyard costs and those of the other leading maritime nations is tending to become narrower rather than the reverse.

The indemnity which the German



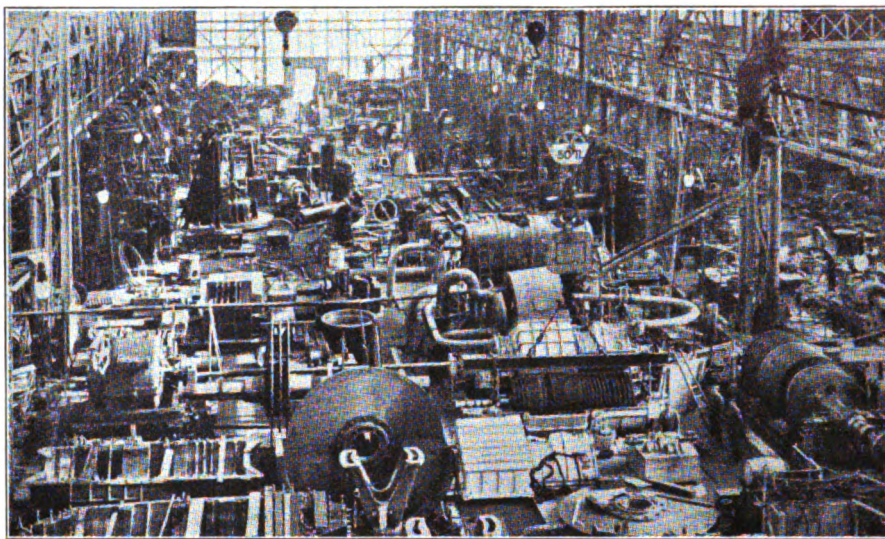
government has paid the shipowners for their losses growing out of the war has, therefore, proved inadequate. This sum amounts to 12,000,000,000 marks, or about \$65,000,000 at current exchange. It has been called a subsidy for the purpose of setting German shipping on its feet again. Such a characterization is neither fair nor true. This payment, which was finally agreed upon last summer merely represents compensation for the ships which German owners were forced to surrender under the peace treaty, a liability which naturally the government had to assume. The payment is to be spread over five years and since it represents only about \$12 a ton for the vessels involved, the remuneration can hardly be called princely. Rising costs and shortage of raw materials have naturally led to combinations between German shipbuilders, iron and steel manufacturers, shippers and shipowners. The principal interests concerned in these consolidations have been Stinnes line, the Norddeutscher Lloyd, the Hamburg-American line and the Deutsche-Australische Dampfschiffgesellschaft. A typical one of these consolidations is that between the Hamburg-American line, the shipyard of the Deutsch Werft at Hamburg, the great Gutehoffnungshuette, an iron and steel manufacturing company, and the A. E. G., or German General Electric company. Herr Thyssen, who in spite of his big properties lost in Lorraine, still controls large iron and steel plants in Germany, is heavily interested in three shipyards, including the big Vulkan yard at Hamburg, and the Braemar and Flensburg establishments. Stinnes too is in the shipbuilding business as owner of the Nordsee works at Emden and the Frerich yard at Eiswarden. Krupps have their own shipbuilding plant at Kiel.

The Germans have not been slow to grasp the possibilities of the fabricated ship idea, and 20 standard vessels are being built by the Deutsche Werft. Many of the parts of these and other standard ships are fabricated in the interior of the country, following closely the practice developed in the United States at the time of the war.

Among some of the more notable German ships built during the past year are the three Stinnes line steamers of 12,000 tons each, the largest so far constructed since the war, tactfully named the TIRPITZ, the HINDENBURG and the LUDENDORFF. The Hamburg-American line, being closer in touch with allied circles, innocuously named its two new freighters the NIEDERWALD and the AZALIA, the former being 7800 gross tons and the latter 5300 tons. In addition, the Deutsche-Australische company has built three 9000-ton ships called the HANOVER, HAGEN and HANAU. The Hansa company has started its postwar program with two 8000-ton vessels, the

times since the end of the war. But it should not be assumed that this represents increased value or capacity; on the contrary it simply reflects the depreciation of the mark. Thus, in 1914 the Blohm & Voss yard at Hamburg was capitalized at 20,000,000 marks, then representing \$5,000,000. Today the capitalization of this company is 40,000,000 marks, representing, however, only \$415,000. Even inside Germany, the mark is now worth only one-fifteenth of its prewar value. Therefore, the Blohm & Voss company is grossly undercapitalized and the recent increases in capital represent nothing in the way of increased business capacity. They merely reflect

an ineffective attempt to keep pace with the currency inflation. Much has also been made in some quarters of the big dividends paid by these German shipyards. These dividends recently have been about 25 per cent on the average, running up to 30 per cent in the case of the Vulkan yard at Hamburg and down to 18 per cent for the Atlas company at Bremen. An average dividend of



ENGINE AND TURBINE ERECTION SHOP IN A GERMAN SHIPYARD

LAUTERFELS and FRAUENFELS. Many other vessels, of course, are being constructed, 18 more steamers having recently been fitted out for Hamburg owners.

While the Germans have been by no means backward in pointing out how their postwar fleet will have the great advantage of being new and up-to-date, compared with the vessels owned by their rivals, it is significant that practically all of the ships built so far are coal burners with ordinary triple or quadruple expansion reciprocating engines. Motorships are in a decided minority. In general, the new German construction is of the simplest character. And alongside the German pretensions over the newness and consequent operating economy of their ships, must be set the fact that the American fleet is also virtually brand new and, thanks to the German submarine, a large part of the British fleet also.

There are now about 30 shipyards in Germany. They have a little over 100,000 employees. Owing to the currency inflation, each company has been obliged to increase its capitalization several

25 per cent is about three and a half times as much as these companies paid before the war. But the purchasing power of the mark, inside Germany is one fifteenth of what it was in 1913. So the stockholder with a dividend return only  $3\frac{1}{2}$  times larger has fallen far behind insofar as real income is concerned.

In 1913 an investment of \$100 or 400 marks in a representative German shipbuilding stock would have earned about 28 marks a year with a purchasing power of \$7. Today after allowing for a 100 per cent stock dividend, the income at 25 per cent is 200 marks, with an internal or German purchasing power of \$3 and an external or foreign purchasing power of \$1.10. So during the fiscal year ended June 30, 1921, the 23 leading German shipbuilding companies earned aggregate profits of 171,000,000 marks, worth only about \$850,000 in Germany. Big dividend rates are not a reflection of good fortune. They are a necessity. On an ordinary rate, the stockholders would go broke in short order. As it is, their real income has been cut down and, therefore, there is



little new real capital going into German shipbuilding at present.

A somewhat similar financial situation surrounds the German shipping companies. Like the shipbuilders they have benefited from the government's compensation for surrendered tonnage but this appears to have been totally insufficient to replace their fleets and in addition they have been obliged to increase their capitalization constantly in order to keep pace with the depreciation in the value of the mark. Therefore, one finds that toward the end of 1913 there were 64 German shipping companies engaged in trade all over the world with a capital of 502,000,000 marks, worth at that time \$125,500,000. The war period was one of inactivity. Renewed life began to manifest itself in German shipowning circles in 1919. The first two years following the armistice witnessed the organization of six new large shipping companies and the refinancing of practically all of the prewar organizations with the result that since 1913, investment of 900,000,000 marks has been made in German shipping concerns.

The total nominal capital value of the German mercantile marine today is, therefore, 1,402,000,000 marks, convertible on a gold basis into only \$7,550,000. In other words, like the shipyards the shipowning companies have not been able to inflate their capital as fast as the currency has depreciated in value, and in view of the tremendous losses through the war the real value of the German merchant fleet today is probably about one-tenth of what it was before the Kaiser started through Belgium.

The capitalization of the Hamburg-American line has been increased from 180,000,000 marks to 285,000,000 marks; that of the North German Lloyd from 125,000,000 to 250,000,000 marks; the Deutsche-Australische company from 20,000,000 to 84,000,000 marks; the Kosmos line from 14,000,000 marks to 84,000,000 marks; the Hansa company from 25,000,000 marks to 60,000,000 marks; and the Hamburg-South American company from 25,000,000 marks to 50,000,000 marks. These increases, however, as indicated above, do not represent increased real capital or expanded business activities. On the contrary each of these companies is operating on a much smaller scale than it was before the war.

### Freights In Sterling

It will be many years before the German fleet resumes its former importance in world trade although progress is being made month by month. Fortunately for the Germans, generally speaking, the earnings of their fleet are on a sterling rather than a mark basis. But

so few ships, relatively, are in operation that the income which the nation formerly enjoyed from its shipping activities throughout the world has been greatly curtailed. This has had a serious effect on Germany's position in international trade and has contributed to the decline in the value of the mark. Germany must import food, copper, cotton and other raw materials and before the war she depended on her shipping earnings to a large extent to cover these payments. Her shipping earnings at the present time, the rates being nearly on a prewar basis in sterling, are utterly insufficient to meet the situation, being less than 20 per cent of what they were before the war. Dr. Rathenau in his exposition of the German financial situation at the Cannes conference in January, emphasized this feature and used it as an argument to support the German claim that they are unable to meet the reparations demands.

### Many Companies Combine

These considerations have resulted in widespread consolidations and alliances between German steamship companies and industrial organizations. For instance, the Hamburg-American line is now working in close co-operation with the Allgemeine Elektrizitäts Gesellschaft and the Gatehaffnungshuette. The Kosmos company has formed a close alliance with the Deutsche-Australische steamship company, and friendly relations also exist between the Hamburg-American line and the Hamburg-South American company. The North German Lloyd has acquired control of the Roland line and the Hamburg-Bremen Afrika line, while the Hansa Steamship company now controls the Neptune company. The Hamburg-American line and the North German Lloyd are apparently jointly interested in the new Shipbuilding Requirements Co., which has been organized for the purpose of dealing with the problems involved in the reconstruction of Germany's merchant fleet. In this same connection appears the Ship Trustee bank which has been formed with a capital of 100,000,000 marks for the purpose of distributing the government war compensation of 12,000,000,000 marks. This bank is, therefore, a quasi-government institution.

Although the Germans have only about 525,000 tons afloat under their flag at the present time their activities are on a somewhat broader scale owing to the policy followed last year of chartering foreign ships, particularly Scandinavian vessels. Including this tonnage, it might be said that the merchant marine under German control at the present time is about one-quarter of what it was before the war, or about 1,300,000

tons. Due to the lull which has been discernible in German business circles since the turn of the year, chartering activities in foreign markets on German account have been considerably curtailed. The Germans have also taken steps to re-establish their fleet by buying back from the allies some of the ships which had been surrendered. Quite a number of vessels have been purchased in this way in the London market. Swedish vessels aggregating about 100,000 tons also have been purchased. Foreign owners, however, are not showing the disposition to transfer their vessels to the German flag which had been predicted. Although the cost of operation under German registry is the lowest in the world at present, there are compensating disadvantages such as heavy and increasing taxation, and the difficulty of transferring profits made in Germany to outside countries, together with the numerous pitfalls which are encountered in doing business in a country having a practically worthless currency.

Another reason why foreign shipowners are not flocking to the German flag, and this also accounts for the slowing down in the expansion of the German-owned merchant fleet, is found in the fact that German foreign trade as a whole is still much below the normal level. German exports, for instance, according to the latest figures available averaged 1,300,000 metric tons of merchandise per month during the latter part of 1921, as against 6,146,000 metric tons per month in 1913. Imports in 1921 showed a monthly average of 1,600,000 metric tons, compared with 6,078,000 metric tons per month in 1913. From this it is seen that Germany's foreign trade is at the present time on about a 21 per cent basis as regards weight of commodities or volume of traffic.

### Coal Is Higher

Another factor in German steamship operation at the moment is the price of fuel. In October, Ruhr coal was quoted 254 marks a ton, equivalent at that time to only about \$1.00. At present the price is 405 marks a ton, equivalent to \$2.20. These are the prices at the mine to which must be added freight to the ports, bringing the current price for Westphalian coal at Hamburg up to about \$3.50 per ton on board. As a matter of fact, British coal is competing with the German product all along the North sea coast. Exports of British coal to German ports in December 1921 amounted to 158,377 gross tons. These figures reflect clearly the fact that German steamship owners have lost for the time being at least the advantage, which they possessed a few



months ago, of being able to buy in their home ports much cheaper than anywhere else in the world.

Despite the disadvantages under which they are laboring, the Germans are showing the greatest activity in reorganizing their shipping services throughout the world and they have lost none of their general business and trading ability. Exceedingly low rates have been quoted although the figures have been considerably advanced in the past few weeks.

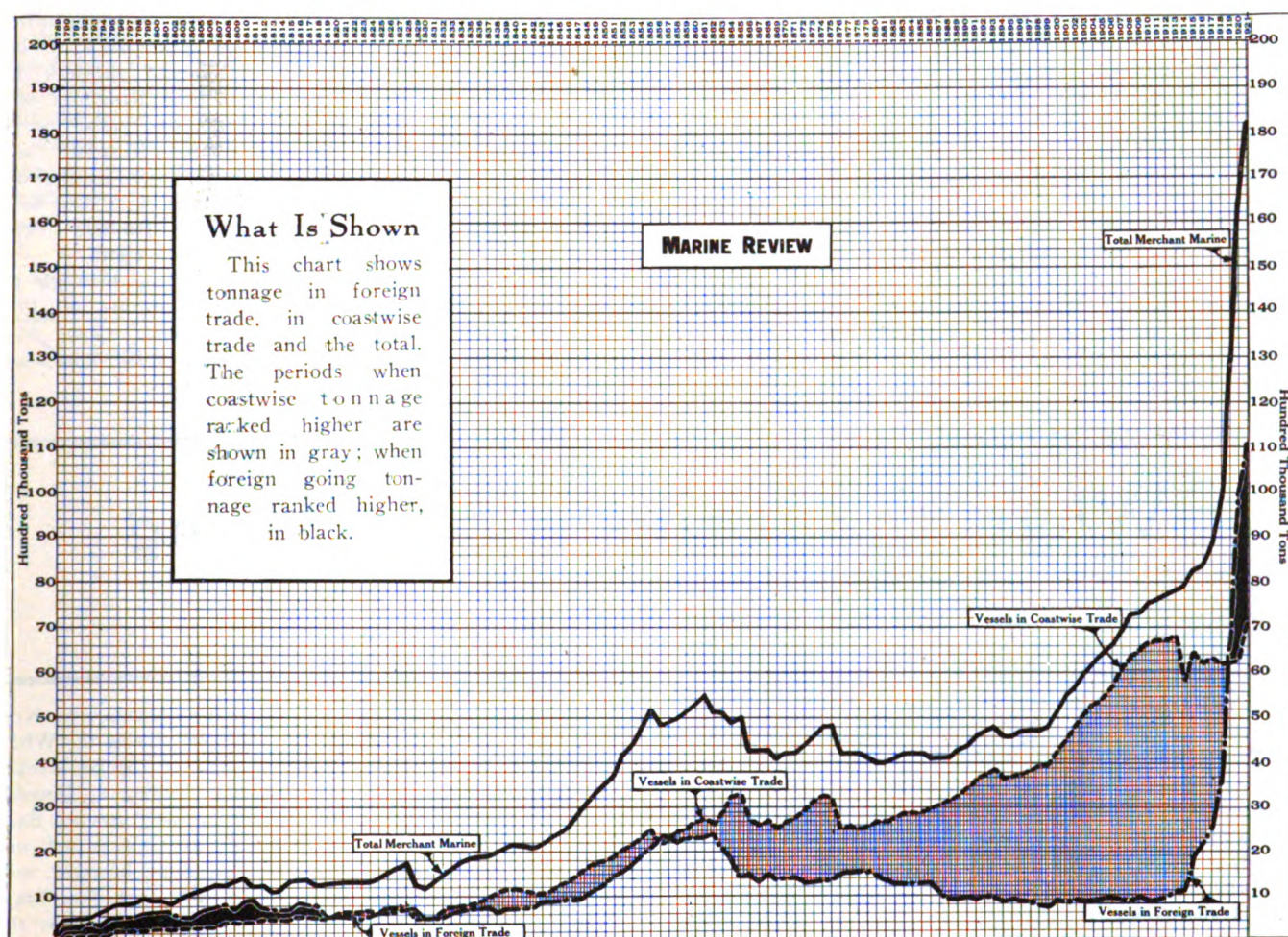
absorbed in the local freight between London and Hamburg, leaving only 30 shillings for the voyage from Hamburg to Pernambuco. British lines at that time were quoting 95 shillings (\$20.00) per ton to Pernambuco direct. At present rates are more nearly equalized. British quotations having been reduced and the German rates raised.

In a general way Germany is making a strong bid to regain her position on the seas. Considering the obstacles

## Fuel Costs of New Fruit Carrying Motorship

Trials of a new English-built motorship have recently been completed. The vessel, built by William Beardmore & Co., Ltd., Glasgow, Scotland, is the *PINZON*. In a report the shipbuilder states that for a speed of 9 knots, fully laden, the revolutions of the main engines were 95, at 105 revolutions per minute the speed was 10 knots, and at 115 revo-

## Complete Record in Graphic Form of the History of American Shipping



Regular lines have been re-established to the more important ports of the world. In their efforts to re-establish themselves in their former routes, the German steamship companies have even sent small vessels ranging from 2500 to 3000 tons to the west coast of South America on voyages on which it is difficult for anything less than a 7000-ton ship to pay. Great Britain has been singled out for special competitive activities and exceedingly low rates have been offered in London for shipments via Hamburg. For instance, in December merchandise cargoes were solicited at the rate of 60 shillings (\$12.60) per metric ton from London to Pernambuco, of which 30 shillings (\$6.30) was

which lie in her path, creditable progress is being achieved. But at the same time the German merchant marine is not going to regain its old position overnight. This is a process which must take years and for a long time to come the British rather than the German merchant marine will be chief competitor of the new shipping activities of the United States.

Albert R. La Fonta, member of the firm of Trosdal, Plant & La Fonta, 35 South William street, New York, operators of shipping board vessels, died recently at his home on Staten Island. He was 42 years old and began his shipping career on the Gulf of Mexico.

lutions per minute the speed was 11 knots. At 9 knots speed, the fuel consumption was at the rate of three tons per day, at 10 knots four tons per day, and at 11 knots 5.2 tons per day. At the lowest of the three speeds, the cost of fuel per hour at £4 (\$17.36) per ton was 10s (\$2.17), at the second speed 13s 4d (\$2.84) per hour, and at the highest, or service, speed 17s 4d (\$3.76) per hour. For the day of 24 hours, the costs at the three speeds were £12 (\$52.08), £16 (\$69.44), and £20 8s (\$88.53) respectively. It was also shown that the fuel costs per 1000 ton miles were 6½d (\$0.12) at 9 knots speed, 7¾d (\$0.14) at 10 knots, and 9¼d (\$0.17) at 11 knots, and that



the cost of lubricating oil for all purposes averaged one-sixteenth of the fuel cost.

On the basis of these figures, the total cost of oil per 1000 ton miles was just under one shilling (\$0.22). The vessel was shown to be capable of carrying 1000 tons of cargo one mile, or one ton of cargo a thousand miles, at a cost in oil of less than a shilling. The maximum speed attained during the trials was 12½ knots on a mean draft of 11 feet, fully laden.

The PINZON and her sister ship PIZARRO, yet to be launched, are vessels of 2050 tons deadweight, 240 feet in length, 38 feet in beam, and 18 feet in depth. They have been designed specially for carrying fruit between Spanish, Portuguese, and United Kingdom ports. They have no boilers whatever. The main engine is of the Beardmore-Tosi design, based on the long and extensive experience of Franco Tosi, of Legnano, Italy and the Beardmore engineers, but incorporating a number of new features which distinguish it from the Italian engine of the same type. The engine has eight working cylinders of 24 3/8-inch diameter by 38 3/8-inch stroke. At 120 revolutions,

it develops 1250 brake horsepower or 1620 diesel indicated horsepower.

### 403 Peruvian Ships Used Panama Canal

Transits of the Panama canal made by vessels under the Peruvian flag in either direction during each fiscal year since the canal was opened to navigation in August, 1914, are shown in the following table:

Fiscal year.	Atlantic to Pacific	Pacific to Atlantic	Total
1915.....	2	2	4
1916.....	16	14	30
1917.....	43	43	86
1918.....	41	42	83
1919.....	34	31	65
1920.....	37	38	75
1921.....	32	28	60
Totals.....	205	198	403

The number of transits credited to Peru in 1921 is less than in any previous year since 1916. This may be attributed to the economic conditions of the past year. One vessel included in the statistics for 1921 was a sailing ship belonging to the Peruvian government bound from Callao to London with 4000 tons of guano; one was a small steamer owned by E. Leith, of

Lima, carrying 125 tons of briquettes from Halifax to Callao; and one was a yacht in ballast from Belize to Callao. All the other vessels belonged to the Compania Peruana de Vapores y Dique de Callao (Peruvian line). This company had 25 sailings from Cristobal to Callao and other ports on the west coast of South America with 26,762 tons of cargo, and 26 sailings from the west coast to Cristobal with 57,146 tons of cargo.

The Peruvian line also dispatches an occasional steamer to the United States or to the United Kingdom via Panama, calling on either route at the principal ports along the coast as cargo offers. During the fiscal year 1921 it had two vessels southbound through the canal from the United Kingdom with 6901 tons of cargo, one vessel northbound to the United Kingdom with 2128 tons, and two vessels southbound from the United States with 8260 tons. The Peruvian line steamers carry passengers as well as freight.

The total cargo moving through the canal in Peruvian bottoms in 1921, according to the *Panama Canal Record* was: southbound, 42,048 tons, and northbound, 63,274 tons.

## What the British Are Doing

### Short Surveys of Important Activities in Maritime Centers of Island Empire

**L**LOYD'S powerful influence has been behind the adoption of the 1921 Hague rules regarding bills of lading, etc. At the annual meeting of the members of Lloyds held recently, the following resolution was passed unanimously: "Be it resolved that this meeting of members of Lloyds having considered the Hague Rules 1921, hereby approve of the said rules as calculated to promote the interests of the commercial community."

The resolution was introduced by Sidney Boulton, chairman of Lloyds, and seconded by H. J. F. Dumas, a delegate of the Hague conference at which the final draft of the rules was approved. The Institution of London Underwriters and the Liverpool Underwriters' association have also adopted resolutions in favor of the Hague rules.

A joint meeting representing various trade and shipping interests was held under the auspices of the London chamber of commerce, Jan. 24, for the purpose of expressing an opinion regarding "received for shipment" bills of lading. A resolution was passed to the effect that, "the

trades represented by this community are of the opinion that documents described as received for shipment bills of lading are not in fact bills of lading and should not be accepted as such." It was pointed out at the meeting that some confusion exists between "received for shipment" bills of lading and "through" bills of lading. The latter are employed where goods are forwarded from interior points inasmuch as "shipped" bills cannot be issued at the time of the shipment of goods from interior points. "Received for shipment" documents, it was pointed out, have their uses and where their employment is found satisfactory to all parties their issue will doubtless continue.

\* \* \*

**W**HEN the Irish Free State commences to function, arrangements likely will be made to improve considerably the service between Ireland and New York, utilizing American ships. In view of this proposed competition, British liner companies are already making arrangements to strengthen their services on the Irish sea route. The White Star line is transferring the ADRIATIC from South-

ampton to the Liverpool-Queenstown-New York service. This will enable the White Star line to maintain a regular weekly service on this route calling at Queens-town both ways, using the ADRIATIC, BALTIC, CEDRIC and CELTIC. It is not unlikely that American ships, however, will be employed for handling Irish Free State mails to the United States, because the Irish authorities are dissatisfied with the mail service between Ireland and America handled through the British postoffice. A large volume of this mail has to be relayed through Liverpool resulting in delays of from two to three days, which Irish business interests consider inexcusable. Recently owing to the cancellation of a sailing of the CELTIC from Liverpool, the Irish mail had to be transferred across England to Southampton, resulting in several days delay, although the United States line immediately offered to handle the mail direct from Queens-town on the AMERICA. This offer was refused by the English postal authorities on the ground that their contract arrangements would not permit of sending the mail via the U. S. line.



# Shipyards Have More Inquiries

Upturn in Shipbuilding Marked by Call for Estimates on 18 Ocean Liners—Repair Work Heavy

OUR estimating department is busier than ever before," declared the ship-sales representative of one of the largest eastern shipyards. Owners are asking for estimates on some 18 big ocean-going liners, mostly passenger ships, according to the reports gathered. While all of these vessels will not be built for the present, some contracts will result before many more months pass. This is the first definite indication given of the break in the sharp shipbuilding slump. The American Bureau of Shipping reports that while only one contract for an ocean-going ship was passed through its inspection during 1921, it now has under advisement the approval of designs on at least a

dozen new ships for American owners.

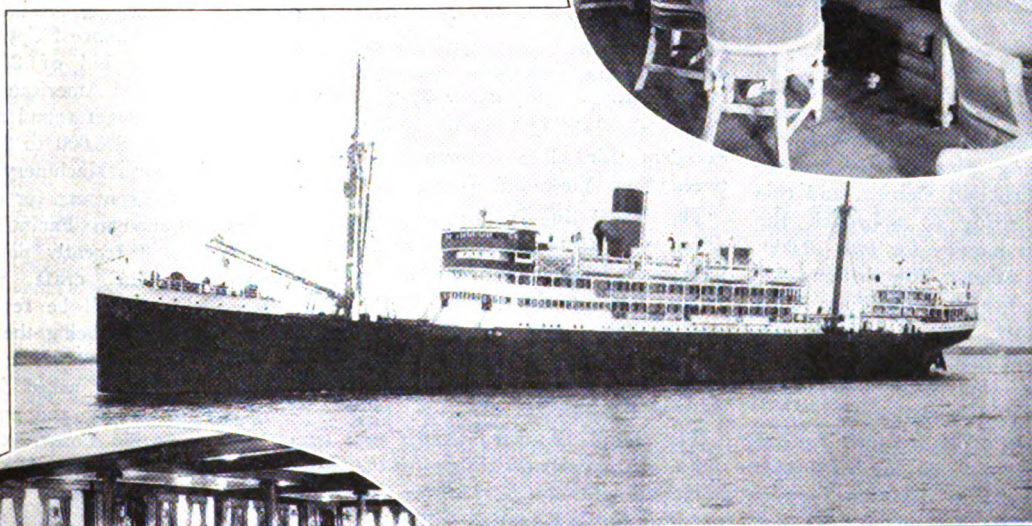
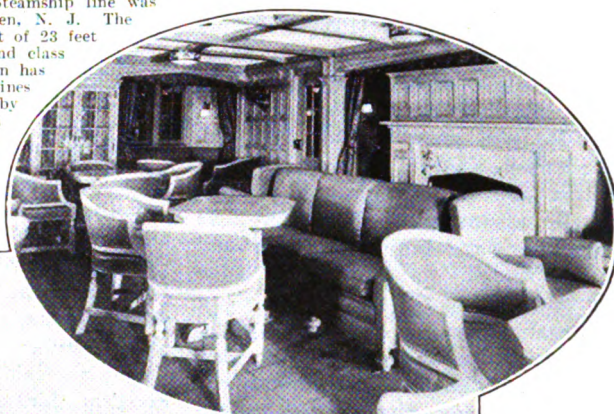
This promised business is extremely welcome to shipbuilders in view of the extent to which work has declined in the yards. About 275,000 gross tons of shipping are now building in American yards, and the number of employees is today but one-tenth of the number employed at the time of the shipbuilding peak in 1919. The shipbuilding situation has in the past been considerably confused by the different reports put out by the various classification societies. British Lloyds figures have never agreed with the figures issued by the American Bureau of Shipping, and neither of these has agreed with the French Bureau Veritas. As a matter of fact, no one bureau classi-

fies all the ships building or built and, therefore, no one bureau possesses at any one time all the data on shipbuilding.

During the coming year, it is anticipated that more foreign work may be taken on by the American builders. C. S. King, secretary of the Atlantic Coast Shipbuilders association states that an analysis of recent figures shows that 188 seagoing vessels of more than 1000 gross tons each and costing \$325,000,000 were constructed during the past year, 87,750 tons of which were for foreign account. He also pointed out that in the case of tanker tonnage, two-thirds of the building last year was done in the United States while increases are also shown

## New American Passenger and Cargo Ship Munargo for West Indian Trade

This latest addition to the increasing fleet of the Munson Steamship line was recently completed by the New York Shipbuilding Corp., Camden, N. J. The MUNARGO is 414 feet long and 57 feet 6 inches beam, with a draft of 23 feet 8 inches. She has accommodations for 185 first class, 60 second class and 52 third class passengers with a crew of 119, and in addition has a cargo capacity of 2000 tons. Driven by reduction geared turbines of 5800 horsepower, supplied with steam from five boilers, fired by fuel oil, the MUNARGO will maintain a speed of 15½ knots in service. The boilers are of the Scotch type with Parsons turbines and DeLaval gears. The accommodations and appointments are of the highest order throughout. The staterooms have every modern convenience, including specially designed dressing tables, beds, electric fans, etc. The old type of berth has been largely superseded by specially designed enameled beds. The suite



rooms on the promenade deck are finished in a light natural gray toned to match the hangings while the trim is either mahogany or French walnut, according to the period of the furnishings. The public rooms are numerous, light, airy and exquisitely finished. They include a social hall, lounge and music room, smoking room, library and writing rooms, entrances and galleries. A sun and dancing deck for first class passengers has been provided for on the boat deck over the smoking room. The dining saloon is located on the shelter deck, over the center of which is located a large dome and light well opening into the music room. Second and third class passengers are all accommodated aft. A noteworthy point is the comfortable quarters provided for the officers and crew. The ship has been built on the transverse system of framing and to take the highest class in the American Bureau of Shipping and Lloyd's Register. She will start her career as an oil burner, but is so designed that conversion to coal will not be difficult.



in the number of large vessels being constructed. In comparison with 32 ships of 10,000 gross tons and over reported launched in 1920, there were 47 last year.

Inquiries for six motorships for American owners are now in the hands of American shipyards. Bids for the construction of six combination passenger and freight vessels have been filed with Whittlesey & Whittlesey, naval architects, New York. These vessels are said to be intended for the Tri-National Steamship Co., 17 Battery place, New York, of which B. W. Morse is president. The vessels will measure 225 feet in length and will be between 1300 and 1500 tons deadweight. The owners intend to have them equipped with diesel engines capable of driving the ships at a speed of between 12½ and 13 knots. Five shipyards bid on the six vessels, at the invitation of the architects and the figures are now being analyzed with a view to letting the work. The owners will use these ships in the fruit trade, bringing apples down from Newfoundland and tropical fruit up from the West Indies.

American yards have also been asked to submit bids on two 1100-ton motorships for Mexican interests. These two boats are designed in accordance with British Lloyd's specifications. The Mexican government, it is said, has started upon a new era of subvention and these ships are planned to take advantage of that offer. The ships will carry both passengers and freight, using Vera Cruz as a home port and serving the other ports along the east coast of Mexico. From Mexico also comes the report that a new line with Mexican government subsidy is being planned to operate between Tampico and Europe, and this line is about ready to approach the market with an inquiry for two 10,000-ton passenger ships. The designs for these latter, however, have not been seen and further details are lacking. In the case of the motorships for Vera Cruz, however, the plans have been drawn by New York architects.

Other jobs on which eastern American yards are now making estimates are based on inquiries from the Oceanic Steamship Co., San Francisco, for two passenger vessels for operation to the Dutch East Indies; Admiral line, two ships of the PRESIDENT type; Portland & San Francisco Steamship Co., subsidiary of the Union Pacific railroad, two ships; the Ocean Steamship Co., Savannah, Ga., two ships, and two ships for A. H. Bull & Co., which it is understood, are intended for trading with Porto Rico. The two passenger vessels which the Red D line wishes

to have constructed are also unplaced. Many other jobs are in a more or less indefinite state. For instance two ships may be built for the Hudson river trade. Five barges are under contemplation for the New York state barge canal, and sundry other prospects are in the market.

Some of these new boats are old matters to the steamship lines in question as their design has been under consideration for a year or so in some cases. In one instance, the architect has had the plans on the board for about three years. In the other cases, the desire of the steamship lines for ships has been a rather recent development. But this is the first time that the plans have gone so far as to be submitted to the shipyards for bids. And that is the first indication of the improvement in the shipbuilding outlook.

#### Many Repair Contracts

In the meantime, repair work continues heavy. The Tietjen & Lang yard of the Todd Shipyards Corp., New York, has taken a contract with the American line to recondition the MANCHURIA. The alterations will be confined mostly to third-class accommodations and will enable this ship, when finished, to carry 1150 passengers in that class alone, in enclosed 2, 4 and 6-berth rooms of the same type as those on the third-class carrier MINNEKAHDA. A steel deck house to accommodate the third-class smoking room will also be constructed, as well as an enclosed promenade deck for third-class passengers. Some alterations will be made to the MANCHURIA's sister ship the MONGOLIA, and these two cabin class ships, together with the American line's third class ship MINNEKAHDA, will offer excellent third-class accommodations between New York and Hamburg.

The Ward line is planning to recondition the ORIZABA and the SIBONEY, passenger ships now in the Cuban service. These ships were taken over by the government for transport service in the war and the original plans for passenger accommodations were somewhat altered.

The Todd Shipyards Corp. has acquired the realty holdings of the Mobile Shipbuilding Co., Mobile, Ala. The addition will place the Todd corporation in a position to compete for the large amount of repair work that is done in the Gulf. Todd yards are now located on the three ocean coasts of the United States.

The St. John Shipbuilding Co., with offices at Montreal, Que., will construct a shipbuilding and repair yard at St. John, New Brunswick. The contract for building the yard has been let and approximately \$200,000 worth

of material for its construction has been purchased of the United States shipping board. Among the equipment purchased was a large fitting-out crane with which the board had equipped the Merchant Shipbuilding Co. yard at Bristol, Pa. The St. John yard is to have a 1200-foot graving dock, according to the reports. This is an all-winter port, one of the few in Canada, and therefore, it is said, the yard has the backing of the Canadian government. The large graving dock is believed to be planned with a desire to obtain the contracts for docking the many large English passenger vessels which ply between New York and Europe. These ships have never been able to find drydocking facilities on this side of the Atlantic.

More than \$500,000 will be spent by the shipping board in preparing its fleet of passenger vessels for the anticipated spring rush of ocean travel. About 10 vessels will undergo reconditioning, the principal work to consist of extension of third class accommodations.

#### Shipyard Activities

Contract for a steel hull, twin screw ferry has been awarded to the Prince Rupert Drydock Co., Prince Rupert, B. C., by the provincial public works department. The vessel will be used for the Francois lake service and the estimated cost is \$75,000.

The Admiral line steamer ADMIRAL FARRAGUT is being overhauled and remodeled by the Wallace Shipyards, Vancouver, B. C., on a bid of \$63,500, Canadian funds. Bids of American yards from Los Angeles to Puget sound are said to have ranged from \$98,000 to \$110,000.

The Victoria Machinery Depot has been awarded the contract for extensive repairs to the Canadian Pacific's steel transfer barge No. 8 recently damaged by going aground. The craft was practically wrecked and will be repaired at a cost of \$50,000, this being the lowest of four tenders.

Bids are being asked for the purchase of the machinery and equipment of the Norway-Pacific Construction & Drydock Co., Everett, Wash. The firm is in the hands of a receiver.

The tanker FORT MCHENRY was launched on Feb. 1 from the Locust point yard of the Bethlehem Shipbuilding Corp., Baltimore.

Fire which destroyed two garages, 25 automobiles and two pipe houses in the shipyard of the Morse Dry Dock & Repair Co., foot of Fifty-fifth street, Brooklyn, recently, doing damage estimated at \$150,000, was stopped before the docks, shops and other facilities of the yard were harmed.



## Board To Sell Drydocks

The shipping board is preparing to sell at an early date a number of floating drydocks. The first sale will be of three docks, each of 10,000-ton lifting capacity, recently delivered to the board. The terms will include a substantial cash payment, with the balance of the purchase price spread over a number of years. The docks, according to a shipping board statement, are of the most advanced designs of wood construction. The date of sale has not yet been announced.

## Canada to Manage Own Ship Repair Plant

The drydock, shipbuilding and repair plants owned and controlled by the Grand Trunk Pacific railway have been taken over by the Canadian government. The apparent intention is to operate them in connection with the

Grand Trunk Pacific railway and the Grand Trunk Pacific Steamship Co., both of which are now under control of the Canadian National railway. Prince Rupert is to be made a terminal point.

The ship repair plant is as complete as any on the Pacific coast, and includes a machine shop, two covered shipbuilding sheds, a foundry, blacksmith shop, and power house. The shipbuilding plant is equipped with two ways, of sufficient size to permit construction of large hulls.

Capt. John Pritchard, formerly commodore of the Cunard line fleet, died Jan. 29 in London. He retired as commander of the MAURETANIA in 1909 after 52 years of service on the sea. He began as a cabin boy on a Welsh coasting schooner. He was a native of Wales. He served 21 years on sailing ships and made five trips to India. His first command was the SAMARIA.

## Bureau Renames Officers

All the officers of the American Bureau of Shipping, including Stevenson Taylor as president, and Capt. C. A. McAllister as senior vice president, recently were re-elected for the ensuing year. G. P. Taylor was made a vice president to succeed the late Commodore Bertholf, combining that office with his former position of treasurer. William Francis Gibbs and Theodore Wells were added to the technical committee on naval architecture. A new subcommittee on internal combustion engines was added to the engineering committee, and it will consist of Dr. C. E. Lucke and Messrs. Rutter, Cooke and West.

Capt. William J. Staples, retired commander of the Clyde Steamship Co., died recently at his home in Brooklyn. He had served the company 26 years. He was 71 years old and was born in England.

# Assigned Shipping Board Vessels

TULSAGAS, tanker, 10,200 tons, assigned Columbus Shipping Co., management operation.

HAMMAC, new tanker, 9980 tons, assigned Struthers & Barry, management operation.

NUTMEG STATE, new steamer, 13,000 tons, assigned Munson Steamship line, managing agent.

PALMETTO STATE, new steamer, 13,000 tons, assigned Munson Steamship line, managing agent.

SUSQUEHANNA, 12,000 tons, assigned United States lines under special agreement.

SAUCON, 7825 tons, assigned Daniel Ripley & Co., managing agent.

CASTLETOWN, 5143 tons, chartered bareboat basis, Munson Steamship line.

CHICKAMAUGA, 5740 tons, chartered bareboat basis, Munson Steamship line.

MAJOR WHEELER, 4819 tons, chartered bareboat basis, Baltimore Steamship Co.

TULSA, 7825 tons, assigned Trosdal, Plant & LaFonta, managing agent.

CITY OF EUREKA, 8645 tons, assigned Mallory Transport Lines, Inc., managing agent.

EASTERN SWORD, 5531 tons, assigned Harriss, Magill & Co., Inc., managing agent.

SPRINGFIELD, 8550 tons, assigned Rogers & Webb, managing agent.

WESTBRIDGE, 8594 tons, assigned Black Diamond Steamship Corp., managing agent, to lift Russian relief cargo to the Baltic from Baltimore.

BELLINGHAM, 7493 tons, assigned Tampa Inter-Ocean Steamship Co., managing agent, to lift Russian relief cargo to the Black sea from New Orleans.

PLAINFIELD, 4300 tons, chartered bareboat basis, New York & Cuba Mail Steamship Co.

SIoux CITY, 4208 tons, chartered bareboat basis, New York & Cuba Mail Steamship Co.

LAKE SAVUS, 4225 tons, chartered bareboat basis, New York & Cuba Mail Steamship Co.

LAKE ELMHURST, 4261 tons, chartered bareboat basis, New York & Cuba Mail Steamship Co.

LAKE GALISTEO, 4208 tons, chartered bareboat basis, New York & Cuba Mail Steamship Co.

LAKE IKATAN, 4208 tons, chartered bareboat basis, New York & Cuba Mail Steamship Co.

ABRON, 7814 tons, assigned Export Steamship Corp. managing agent.

TENAPLY, 7433 tons, assigned C. H. Sprague & Son, Boston, managing agent, to lift Russian relief cargo to the Baltic.

WESTMEAD, 8541 tons, assigned C. H. Sprague &

Son, Boston, managing agent, to lift Russian relief cargo to the Baltic.

HINCKLEY, 7433 tons, assigned Rogers & Webb, Boston, managing agent, to lift Russian relief cargo to the Baltic.

BRADDOCK, 9741 tons, assigned A. H. Bull & Co., New York, managing agent, to lift Russian relief cargo to the Black sea.

WEST MUNHAM, 8635 tons, assigned Barber Steamship lines, New York, managing agent, to lift Russian relief cargo to the Baltic.

MEANTICUT, 9632 tons, assigned Export Transportation Co., Baltimore, managing agent, to lift Russian relief cargo to the Baltic.

EASTERN CROWN, 8360 tons, assigned Susquehanna Steamship Co., New York, managing agent, to lift Russian relief cargo to the Baltic.

EASTERN ADMIRAL, 10,000 tons, assigned Moore & McCormack, New York, managing agent, to lift Russian relief cargo to the Baltic.

DUQUESNE, 9750 tons, assigned Mallory Transport Lines, Inc., Baltimore, managing agent, to lift Russian relief cargo to the Black sea.

NARBO, 9402 tons, assigned Export Steamship Co., New York, managing agent, to lift Russian relief cargo to the Black sea.

NARCISSUS, 9435 tons, assigned A. H. Bull & Co., New York, managing agent, to lift Russian relief cargo to the Black sea.

LAKE FAIRPORT, 4155 tons, chartered bareboat basis, Munson Steamship line; withdraw Emergency Fleet corporation managing caretaker.

LAKE GIRTH, 4155 tons, chartered bareboat basis, Munson Steamship line; withdraw Emergency Fleet corporation managing caretaker.

BANNOCK, 7388 tons, assigned Baltimore Steamship Co. managing agent; withdraw Emergency Fleet corporation managing caretaker.

GOVERNOR JOHN LIND, 4756 tons, chartered bareboat basis, Baltimore Steamship Co.; withdraw Emergency Fleet corporation managing caretaker.

ABERCOSS, 9414 tons, assigned Waterman Steamship Co. managing agent; withdraw Emergency Fleet corporation managing caretaker.

LAKE GADSDEN, 4225 tons, chartered bareboat basis, Lykes Bros.; withdraw Emergency Fleet corporation managing caretaker.

SCHROON, 7825 tons, assignment Emergency Fleet corporation managing caretaker canceled; assigned Daniel Ripley & Co. managing agents;

withdraw managing agent Trosdal, Plant & LaFonta.

LAKE FALAMA, 4155 tons, chartered bareboat basis, Munson Steamship line; withdraw Emergency Fleet corporation managing caretaker.

INDEPENDENCE, 11,773 tons, withdraw Emergency Fleet corporation managing caretaker; assigned Barber Steamship Lines, Inc., managing agent.

DIO, 7814 tons, withdraw Emergency Fleet corporation managing caretaker; assigned Tampa Inter-Ocean Steamship Co. managing agent.

LAKE TREBA, 4155 tons, withdraw Emergency Fleet corporation managing caretaker; chartered bareboat basis, Munson Steamship line.

WEST QUECHEE, 8594 tons, withdraw Emergency Fleet corporation managing caretaker; assigned Export Transportation Co., Inc., managing agent.

SAG HARBOR, 3535 tons, withdraw Emergency Fleet corporation managing caretaker; chartered bareboat basis, Joyce Watkins Co.

ALEDO, 7249 tons, withdraw Emergency Fleet corporation managing caretaker; assigned Mallory Transport Lines, Inc., managing agent, to lift full cargo sacked grain, Baltimore/Baltic, last half January loading account Russian relief program.

EASTERN STAR, 6699 tons, withdraw Emergency Fleet corporation managing caretaker; assigned Susquehanna Steamship Co. managing agent.

KAMESIT, 9428 tons, withdraw Emergency Fleet corporation managing caretaker; assigned Trosdal, Plant & LaFonta managing agent to lift full cargo sacked grain New Orleans/Baltic or Black sea ports last half January loading account Russian relief program.

LAKE HECTOR, 4230 tons, withdraw Emergency Fleet corporation managing caretaker; chartered bareboat basis United Steamship Co.

WEST RARITANS, 8544 tons, assigned W. A. Blake & Co. managing agent; withdraw Emergency Fleet corporation managing caretaker.

WEST CHESWALD, 8587 tons, withdraw Emergency Fleet corporation managing caretaker; assigned Mississippi Shipping Co., Inc., managing agent.

SALEM COUNTY, tanker, 7540 tons, withdraw Emergency Fleet corporation management and operation; assigned Walker & Daly for management and operation.



FIG. 1—MACHINE SHOP OF THE AMERICAN SHIPBUILDING CO., CLEVELAND—PRACTICALLY ALL MACHINE TOOLS ARE EQUIPPED WITH INDIVIDUAL ELECTRIC DRIVES



# Engine Building in a Lake Yard

Accuracy Is Assured By Modern Tools and Skilled Mechanics—  
—Engine Building a Complete Trade Involving High Degree of Skill

BY FRED B. JACOBS

**T**HE fact that one large bulk freighter is in process of construction at Port Arthur, Ont., while several ship-operating companies on the Great Lakes are contemplating seriously the addition of new tonnage has revived interest in the excellent engine building facilities in Great Lakes shipyards.

These engine building plants won special recognition during the rush of war construction on account of the rapidity of production and the standard of performance of the completed engines.

for dock trials, care must be exercised in every step to insure the finished engine functioning properly so that it may prove an economical unit instead of a source of expense to its owners.

A marine engine properly built will, with reasonable attention to lubrication, run for weeks at a time at sea without overheating. On the other hand, slight irregularities in alignment will result in overheating, no matter how much attention the engine receives from the engineers in charge.

This feature obviates necessity of line shafting and overhead belting. The company operates its own foundry, so satisfactory castings can be had on short notice.

## One Piece Bed Plates

**B**ED plates for 1200-horsepower triple-expansion engines are cast in one piece. This practice calls for a high degree of skill in the foundry to furnish the necessary castings free from imperfections; but the advantages of a 1-piece bed more than

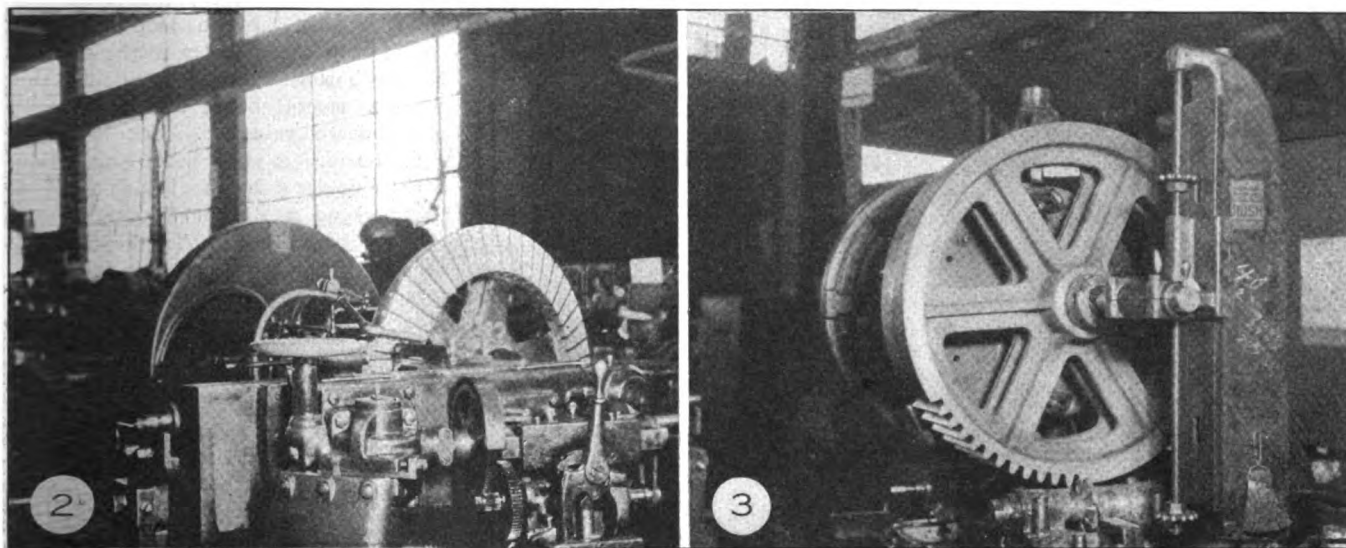


FIG. 2—LARGE BEVEL GEARS ARE GENERATED ON A GLEASON GEAR PLANNER—FIG. 3 SHOWS THE CUTTING OF TWO LARGE SPUR GEARS ON A NEWARK AUTOMATIC GEAR CUTTER

The lake companies have been able during the shipbuilding depression, which is now closing, to maintain their organizations. With orders for new tonnage for both fresh and salt water service now assured, a description of marine engine building practice on the Great Lakes holds general interest to American shipowners.

## Must Prove Economical

**M**ARINE engine construction involves a separate and distinct branch of machine work, due to the fact these massive units must be constructed with a high degree of accuracy almost entirely without the use of jigs and special tools. From the time the first casting is strapped to the planer platen, until the finished engine is in place aboard ship, ready

The American Ship Building Co., Cleveland, builds a large number of engines annually, both for deep water and lake service, and the methods followed at this plant are interesting. They reflect the result of much study along practical engine building lines.

The company's main machine shop is a modern brick structure of the monitor type with three bays. View of the shop are shown in Figs. 1 and 12. The building is 170 feet long and 120 feet wide, equipped with four traveling cranes. The center bay is served by a Shaw 25-ton and a Morgan 15-ton crane, the west bay is equipped with a 10-ton Northern crane, while a 3-ton Shepard crane is installed in the east bay. As shown in Fig. 1, the machine tool equipment is modern, a majority of the units being electrically driven.

offset the effort necessary to produce the castings. The first machining step on the bed plate is to plane it carefully on top and bottom. Then the locating surfaces for the main journals are finished. After drilling the holes for the journal box bolts and finishing such other holes as are necessary, the bed plate is set in place on the assembling floor.

Another important planing operation consists of finishing the columns. These units are cast in box section to insure lightness and rigidity. The principal machining operations are planing the bases and tops and the locating surface for the crosshead guides. Care is exercised to insure the surface for the crosshead guides stands square with the top and bottom and that the top and bottom surfaces are parallel with each



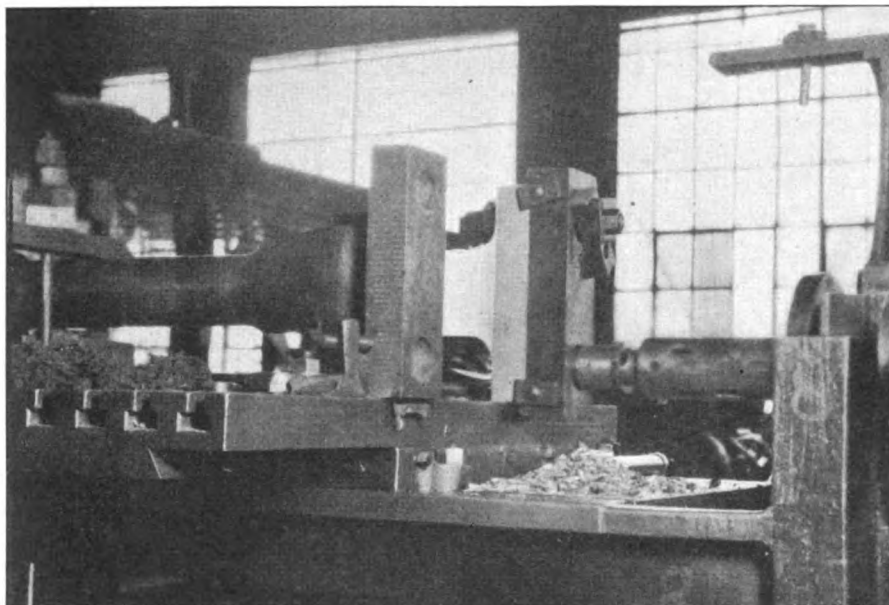


FIG. 4—BORING THE HOLES IN CONNECTING ROD ENDS ON A HORIZONTAL BORING MACHINE

other. This insures units that can be assembled without unnecessary use of shims.

### Making a Crankshaft

**T**O MAKE an accurate crankshaft that will run true after it is installed is not easy, due to the fact these units are made in sections, which necessitates quite close alignment. The webs are steel castings, shrunk in place over the shaft sections and pins, while the pins and shaft sections are mild steel forgings. The webs are first planed on both sides, after which the holes for the pins and shafts are bored out on a vertical boring mill. The holes for the shafts are finished to the desired size making due allowance for a shrinking fit, after which they are keyseated. The holes for the pins, however, are rough bored only, as the finishing operation in-

volves another detail which will be explained later.

The shaft sections and the pins are turned in the lathe. The pins are finished to the desired size in this operation but, with the shafts, allowance is made for a finishing cut over the journals after the webs have all been shrunk in place. The portions for the shrunk fits are accurately finished after which the keyseats are cut. In assembling the shaft, the webs are shrunk in place at each end of a shaft section. The webs are cranked the correct number of degrees apart—that is 120—by the location of the keyseats. Then two shaft sections with the webs in place are located on V-blocks on a floor face plate, the center line of the webs standing at an angle of 90 degrees with the floor plate. In this position a hole is carefully bored through two webs. The

webs are then heated with a gas-fired heater and, when they have expanded sufficiently, the pin is slipped in place. The webs then are allowed to cool off which grips the pin firmly. After the shaft is completely assembled in this manner, a finishing cut is taken over the journals. Thus, it is obvious that the shaft will run true within close limits. The majority of shafts made by the company run dead true.

tested with an indicator. In marine engine practice, it may be well to state, a slight variation of a few thousandths of an inch is allowed. One of the finished shafts is shown in Fig. 1.

### Cylinder Boring

**A**N INTERESTING machining operation is shown in Fig. 5. This unit is a low pressure cylinder, 54-inch bore x 40-inch stroke. The first machining operation on this unit consists of boring. Were the plane surfaces finished first, a bad spot that would ruin the cylinder might develop in the boring operation. Should this happen, several hours of labor would be rendered valueless. For this reason, boring is the initial operation. The cylinder shown in Fig. 5 is mounted on a Beman & Smith horizontal boring mill. As the illustration shows, the platen of this machine can be rotated in a complete circle. Thus, machining operations that can be carried out on the boring mill can be performed at one setting on all four sides of the casting. This saves much time that otherwise would be consumed in repeated settings.

Boring is done by means of a cathed, carrying several tools, which is mounted on the boring bar. The boring and counterboring operations consume about 30 hours, taking three

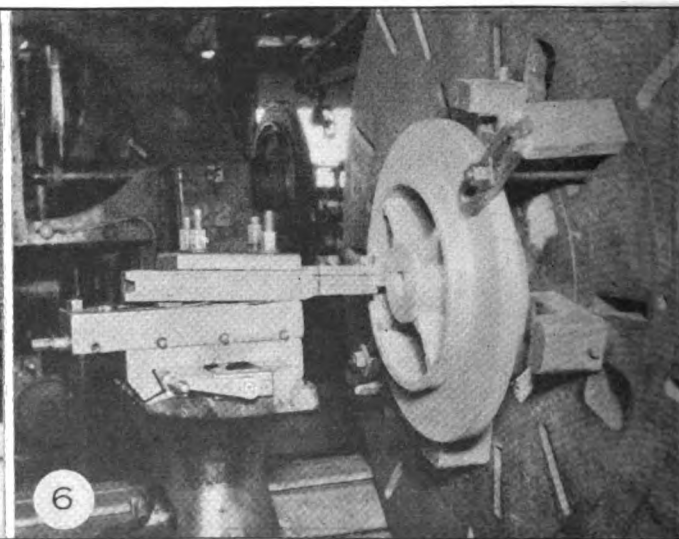
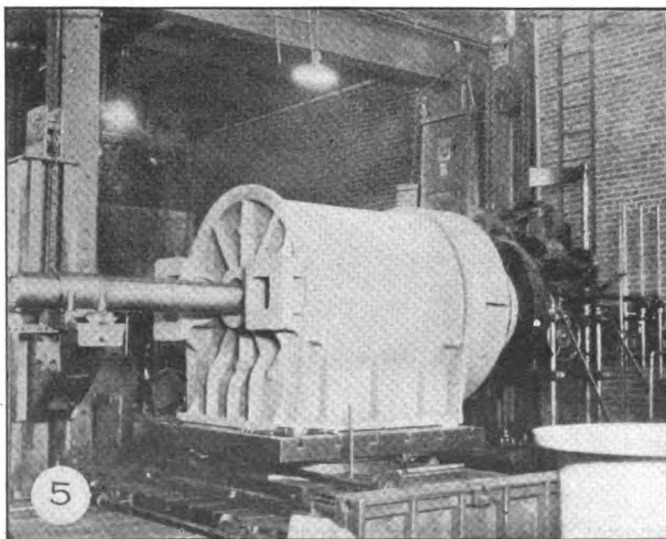


FIG. 5—THIS LOW PRESSURE CYLINDER IS BEING BORED ON A HORIZONTAL MILL—FIG. 6—THIS SHOWS HOW CYLINDER HEADS ARE TURNED IN THE LATHE



complete cuts. After the cylinder is bored, the stuffing box seat is finished next. Subsequent operations on this unit consist of planing the seat for the valve face, etc. These engines are equipped with supplementary valve faces, as this practice makes refitting of a worn valve a comparatively simple procedure.

Pistons, cylinder heads and piston rings are lathe jobs, and as they are carried out by methods usually followed in any marine machine shop, they need no special comment here. In Fig. 6 the work consists of turning a cylinder cover for the intermediate cylinder of a 1200-horsepower engine. The unit is located on the face plate of a large engine lathe.

Connecting rods are steel forgings. The first machining operation is to turn them and face the ends. As both ends are faced while the rod is held between centers, it is obvious that they will stand parallel with each other. This is essential, otherwise the wrist and crank pin boxes could not be made to stand true without unnecessary shimming. After the lathe work is completed, the bolt holes are bored in a horizontal boring mill. This operation is shown in Fig. 4, where it is seen that a template is used to guide the boring tool. This practice assures the same distance between each pair of holes and as the boxes are bored to the same dimensions between centers for the bolt holes, the assembling is simplified.

The American Ship Building Co. builds a large amount of auxiliary ship machinery, accurate gears being involved in some of the units. While it is common practice to resort to cast gear teeth in some types of marine installations, cut teeth insure extreme accuracy in construction and quiet operation under actual operating conditions. In Fig. 2 is shown the operation of cutting a large bevel gear for a lake-type boat steering gear. This unit is a steel casting. This gear is 52 inches in diameter,  $2\frac{1}{2}$  circular

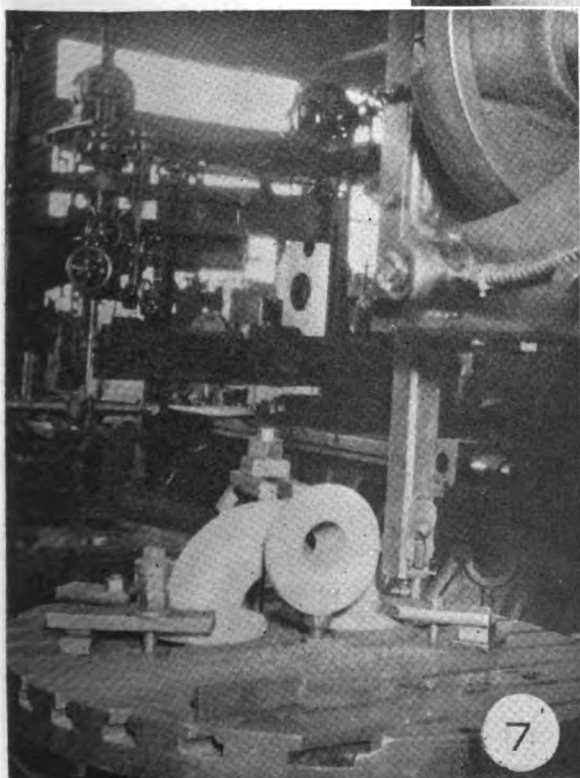
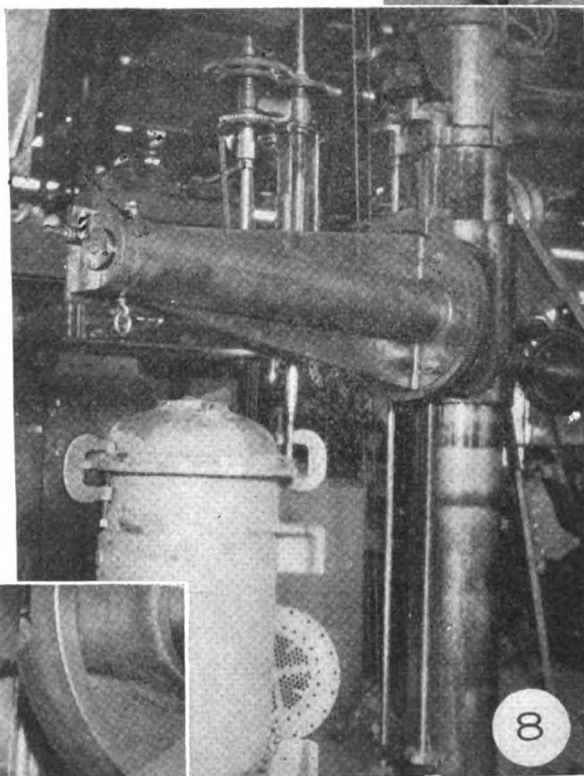
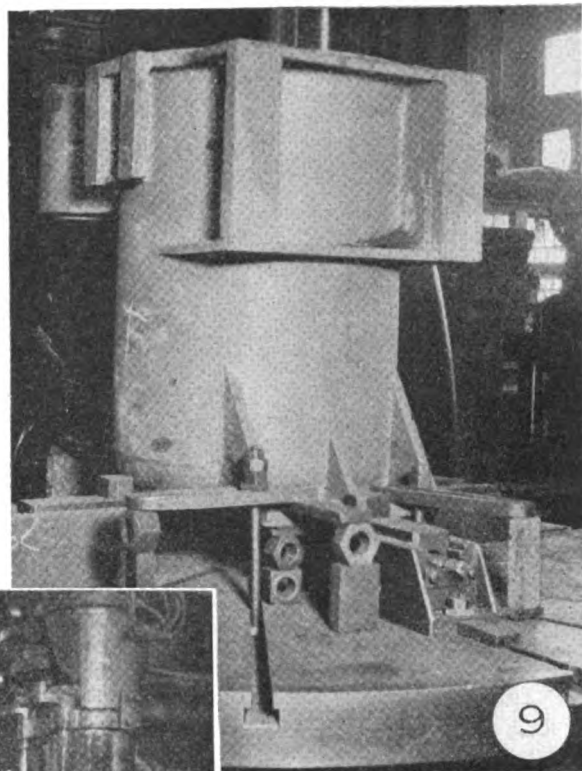


FIG. 7—MACHINING AN IRREGULAR SHAPED FITTING ON THE SLOTTER—FIG. 8, LOCATING THE STUD HOLES ON A WATER HEATER WITH THE RADIAL DRILL—FIG. 9, BORING AN EDWARDS AIR PUMP CYLINDER ON A VERTICAL BORING MILL.

pitch. The casting is first chucked out and turned up on the lathe. In the cutting operation, which is carried out on a Gleason gear planer, the teeth are first stocked out after which they are generated to the correct shape. Fig. 2 shows the stocking operation. In this operation the superfluous stock is removed before the generating operation is begun. Three cuts in all are taken over these gears, 48 hours being consumed in cutting each gear. Considering the size of the gears and the material in question, this is quick time. The operation of cutting two large cast iron spur gears at one setting is shown in Fig. 3. This work is done in a Newark automatic gear cutting machine. These gears are 40 inches diameter with a 6-inch face and are used on cargo winches. The use of cut gears on these units, it is pointed out, insures

quiet running and maximum efficiency. In the cutting operation, a cooling solution, which keeps the cutter flooded, is used. While it is not common practice to cool cast iron in machining operations, this practice keeps the frictional heat down and insures accuracy. Gears of this size cut dry show considerable inaccuracy, due to the expansion of the rim from frictional heat. But one cut is taken on these gears and the cutting time for a pair is 13 hours.

The windlass shown in Fig. 11 is another product of the American Ship Building Co. This unit is the result of careful designing to perfect an auxiliary that would stand up under severe usage on both lake and seagoing vessels. This is a spur geared unit, steam driven by a 2-cylinder engine. For lake use, 10 x 10-inch cy-



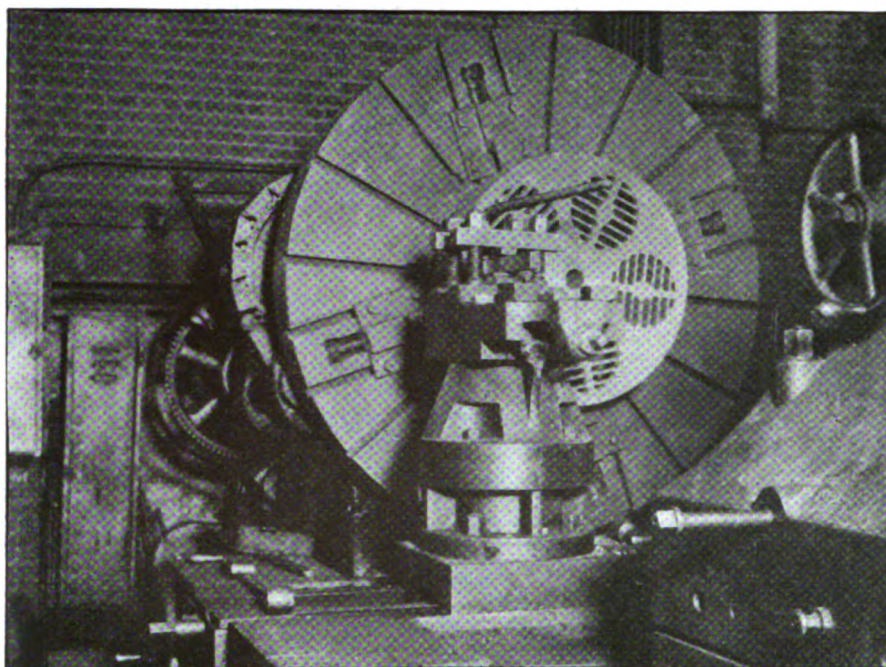


FIG. 10—FACING AN AIR PUMP DISCHARGE PLATE IN THE LATHE

linders are installed. With the deep water windlasses however, the cylinders are 8 x 8 inches. The company has furnished over 200 of these windlasses during the past few years, all of which are in use at the present time. Each unit is provided with two wildcats for handling chain cables and four gypsy heads for accommodating warping lines, mooring lines, etc. The control station is at the rear, facing forward, and all levers are within easy reach of the man in charge.

### Auxiliary Machinery

**A**MONG the other auxiliaries made by the company are air pumps, feed-water heaters and the usual run of marine fittings. The company builds a large number of Edwards air pumps, a cylinder for which is shown in Fig. 9, during the boring operation. This work is done on a vertical boring mill, after which the several locating surfaces are planed. The discharge plate for this pump is shown in Fig. 9, during the boring operation on the lathe.

In Fig. 7 is shown the operation of machining an irregular shaped fitting on the slotting machine. This tool is almost indispensable in a marine machine shop, as its use makes easy the machining of many jobs that otherwise would have to be done under more difficult conditions. In the illustration shown, one face is being planed square with the two faces that locate the piece on the platen.

At present the company is making a number of feed water heaters. These units have cast iron heads and bodies while the tubes are copper.

expanded in place. Fig. 8 shows the operation of drilling the holes for the head studs under a radial drill. A considerable amount of machine work is involved in making these units, as there are a number of faces to be machined. While this work does not call for the accuracy necessary in making marine engines, the several operations involved necessitate considerable care and attention, as the work is done without the use of jigs or fixtures.

### A Trade In Itself

**E**NGINE building is a trade in itself, wherein the men who are engaged in the work must be thorough

mechanics of several years training. To spoil a large casting through ignorance or carelessness would entail a serious loss due to the expense involved for labor and material. As it is interesting work, where a variety of operations are involved, the monotony of working on one operation, day after day, is absent. For this reason, the mechanics to be found in any large marine shop are, in 90 cases out of 100, skilled mechanics, who take a keen interest in their work. This is one reason large units such as marine engines can successfully be built without the use of jigs and special tools.

While it is almost an impossibility to get men of average intelligence to apprentice themselves to the majority of trades in the metal working industries, but little trouble is experienced in getting applicants to learn the mysteries of engine building. A marine engine is almost human in its operations—a piece of machinery that commands respect. This is what the average young man with a bent toward mechanics thinks, at any rate, and possibly is one reason there is not a dearth of apprentices in the marine shops.

The former steamer HONOLULAN has been purchased by the Luckenbach interests for the intercoastal service and has been renamed JACOB LUCKENBACH. This vessel was formerly of the American-Hawaiian fleet and early in the war was chartered from Seattle at a new high rate of \$100,000 per month to carry cargo to Vladivostok. Later she was sold to Norway renamed, THORVALD HALVORSEN and more recently she was known as ARGENTINA.

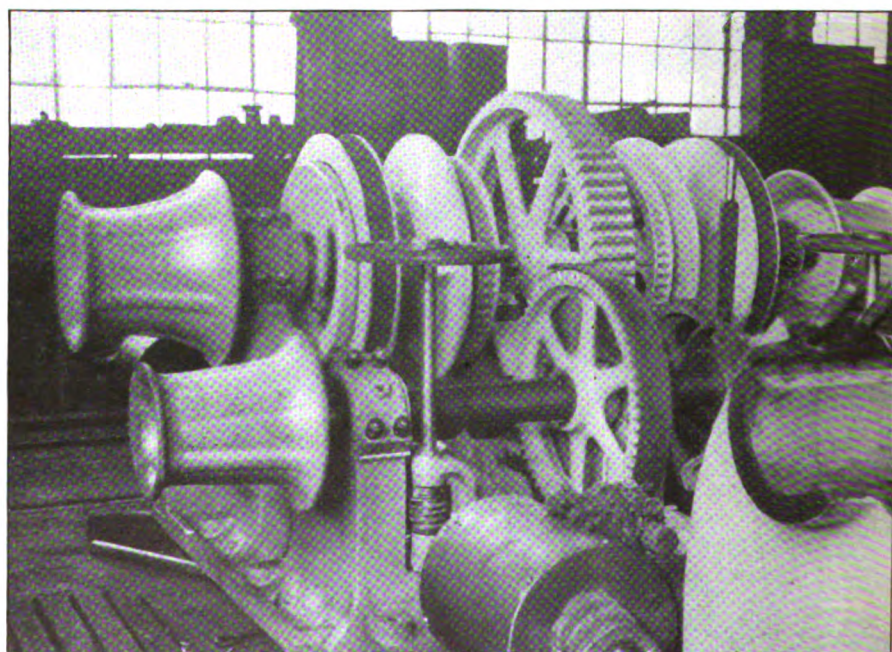


FIG. 11—TYPE OF WINDLASS DESIGNED FOR LAKE AND OCEAN SERVICE



## U. S. Line to Improve European Service

Single-class cabin boats which have been the rule in Latin-American and other trades are now being adopted for the transatlantic. The United States Lines are planning to take advantage of this tendency and will be among the first to establish a single-cabin service between New York and the Channel ports. For this purpose five of the new State-type boats of the shipping board will be utilized. Four of these vessels have already been selected and changes will be made immediately in the arrangement of their staterooms. They will be assigned to what is known as the London run.

The vessels selected by the United States Lines are the OLD NORTH STATE, PANHANDLE STATE, CENTENNIAL STATE, and the BLUE HEN STATE. The first three of these ships have been operated in the London run for a number of months with cabin accommodations for first-class passengers. But under this arrangement, the spacious staterooms have been equipped with beds and have numerous baths between the rooms, some of the baths being equipped with showers.

The appointments have been as luxurious as any first-class liner plying the Atlantic but the boats have been able to accommodate only 80 passengers each. During the season they have been booked full but during the slack months comparatively few persons travel on them. Sometimes one of these ships will carry not over 15 passengers in the first class quarters. They are also equipped with enclosed steerage quarters. Consequently they have been known as first-class and steerage ships, the accommodations for the first-class passengers being such as to bring them under the higher passenger-fare arrangement of the transatlantic conference.

The management of the line finds that one reason these boats are not more popular is because they carry comparatively few passengers. People like to travel with crowds. By installing pullman berths over the beds and by removing the beds in some of the staterooms and installing berths instead, it is possible to increase the number of passengers that can be accommodated. These changes will increase the passenger accommodations to 150 persons. At the same time the changes will alter the classification of the ships, according to the rules of the transatlantic conference, to what is known as cabin service. Therefore, the United States Lines will be permitted to quote a lower rate to persons booking passage on these ships. At present, the conference

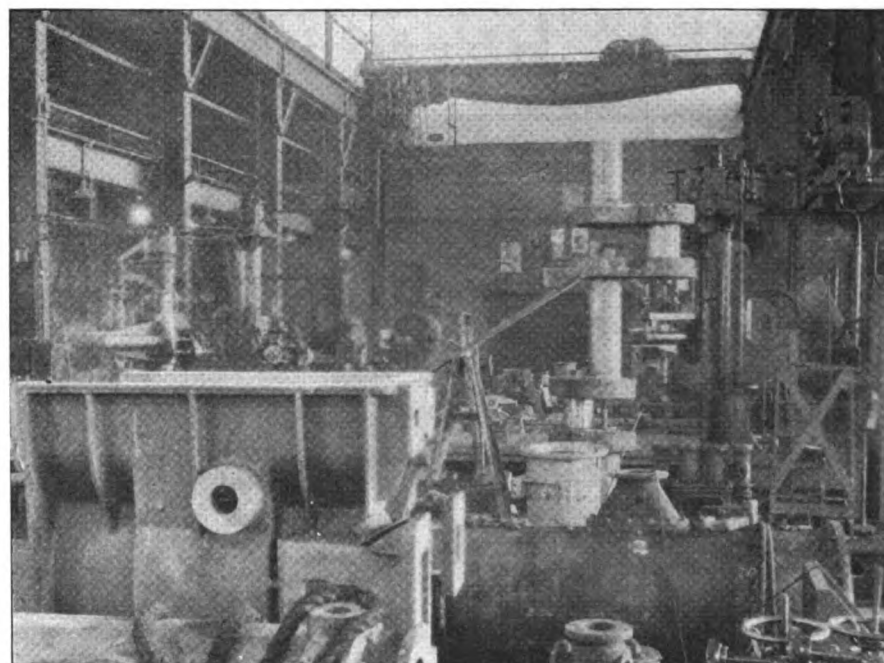


FIG. 12—ENGINE UNITS READY FOR ASSEMBLY AT THE AMERICAN SHIP BUILDING CO. PLANT

determines the rate from New York to London on the OLD NORTH STATE, for instance, at approximately \$200, this varying, of course, according to the location on the ship. When berths replace the beds, the conference will permit a reduction of this rate to \$120 for the passage. With one alteration to the ships, therefore, the line will not only increase the number of potential passengers but bring the rates down to a range which will be more within the reach of the large class of Americans who constitute the bulk of the summer tourists.

The line, however, has decided to make additional alterations to the five ships in the London run by adding to the number of staterooms which were originally installed in the vessels. By increasing the space given over to cabin passengers, accommodations will be provided for 275 persons, and to take care of this large cabin list the dining room will be arranged to seat 200 persons. These accommodations, naturally, will all be in addition to the steerage accommodations for about 300 persons which all five boats of this line will have. Steerage passengers will be carried in enclosed quarters.

When all five vessels are in service, they will make possible a weekly sailing from New York for Queenstown, Cherbourg, Southampton and London. Sailings will be on Saturday. The American line once had a similar service in this London run but has not operated it since before the war. The United States Lines will be able to accommodate a large amount of freight on these five ships in addition to the 575 persons

they will be able to accommodate in the cabin and steerage quarters.

The United States Lines, however, will continue to operate a three-class service to the Channel ports and Germany. To supplement the present excellent fleet of which the GEORGE WASHINGTON is the flag-ship, it is planned to utilize the LONE STAR STATE and the PENINSULAR STATE in the Bremen run. These are two of the larger of the government's new passenger boats, measuring 535 feet in length. They have just been delivered by their builder, the New York Shipbuilding Corp., Camden, N. J., and have very luxurious first-class quarters. The ships also have deck space assigned for steerage accommodations but these were not installed by the builders. The contract for installing the enclosed quarters for the third-class passengers has been awarded to the Robins Dry Dock Co., New York, a yard owned by the Todd Shipyards Corp. These two boats will not have any second-class accommodations, carrying only first and third-class passengers.

There has been an exceptionally large movement of wheat through the port of Vancouver, B. C. During January 25,000 tons of grain were shipped from Vancouver to northern Europe and an equal amount is booked for February.

Frank Waterhouse & Co., one of the best known shipping firms on the north Pacific, went into receivership Jan. 13. The firm's difficulties are attributed to unprofitable investments made during the war.



# World Charter Market Reviewed by

## CHARTERS GAIN

**Sugar Shipping and Russian Grain Relief Improve Market Materially  
—Rates and Demand Also Better**

**O**WING to the increased demand for sugar carriers and the immediate starting of Russian grain relief, the charter market improved materially during the past month and this betterment continues. With the beginning of February spot steamers were still in good demand and prices were holding firm. It is felt, however, that the improvement in the steamer market is due to two separate causes. Only one of these is economic, the improvement in Cuba, while the other, Russian relief, is a result of special governmental activity. For this, however, steamship owners are confessedly thankful. Private steamships obtained little of the Russian relief business but even though government tonnage is being used that removed a competitive factor from the market. The shipping board began during January making ready approximately 60 ships out of the idle fleet. About 30 of these were for Russian grain relief movement, and the remainder for the sugar trade.

Fundamentally the shipping business is showing some improvement. Some rates have gone up and demand in a few lines has been brisk, but it is felt some of these factors are only temporary. Toward the latter part of January the shipping board had left in service only 325 vessels in some 80 cargo trades. This represents approximately a fourth of the government's fleet. Taking advantage of the present slump in business, the owners have put into effect another cut in seamen's wages. This reduction, initiated by the Atlantic carriers, has been followed by similar action by the Pacific carriers. The shipping board also reduced wages but not to the extent of the private owners.

### **Governmental Subsidy Is Aim**

It is evident in all lines of shipping endeavor that all efforts are to be concentrated on the objective of governmental subsidy. The shipping board has been criticized in congress for neglecting its duty of developing the shipping business by conducting a propaganda for subsidy. That is not the actual fact. The board may not have been successful in keeping its ships in operation but the retirement of the public vessels undoubtedly has prevented an absolute deterioration of the freight market. Steamship services are no longer started on a mere chance. Vessels are assigned only when it is demonstrated that sufficient freight is offering.

Continuation of government services in highly competitive routes constantly threatens trouble. For example the shipping board persists in its Caribbean-Colombian freight services which are managed by the Clyde line. All the privately established lines in those services are protesting. Not only do the private operators desire to have this freight service of the shipping board vessels withdrawn, but they are also ask-

ing for the discontinuation of the Panama Steamship line, which is owned indirectly by the war department. According to the Jones act the policy of the government has been announced as directing the withdrawal of public boats when adequate private services are provided.

Under a principle such as that, the protesting private operators declare this is the time to discontinue not only the Caribbean services, but they are restive under the policy of the shipping board, which is retaining and extending the services of the United States lines. It is said that not only has the shipping board made no effort to sell the United States lines, but the board has extended the services of that line materially. When the fleet was arbitrarily taken away from the United States Mail line last year, the board promised that such a thing would not be done.

On the other hand, the Jones law particularly instructs the shipping board to maintain or establish routes which are valuable to American commerce but which would not prove attractive to a private ship operator. The establishment of such services may be warranted under that provision of law but just when the spirit of the law calls for the retirement of government ownership in the services is the point under dispute.

### **Ready To Serve Philippines**

Now the shipping board formally has notified President Harding that it is ready to give adequate service to the Philippine islands and, therefore, invites a promulgation of the coastwise exclusion laws to those islands. Within a short time the board will also be ready to take similar steps in regard to the Virgin islands. This means that a few more routes will be definitely reserved to American vessels by law. The shipping board is starting a new freight service between New Orleans and Liverpool under the agency management of Trosdal, Plant & Lafonta. The Baltimore Steamship Co. has taken three shipping

board vessels on a bareboat charter for operation in trade between Baltimore and Porto Rico. Judging by the attitude now maintained by private owners the bottom of the shipping decline has passed and efforts are being made to purchase tonnage wherever it can be had at reasonable prices. The collier TUCKAHOE has been sold by the shipping board

### **Accept Leviathan Bid**

**O**N FEB. 15, the shipping board awarded the contract for reconditioning the LEVIATHAN to the Newport News Shipbuilding & Dry Dock Co., Newport News, Va. President Joseph W. Powell of the Emergency Fleet corporation puts the maximum cost at \$8,200,000 made up of \$5,395,000 for reconditioning; \$515,000 repairs and machinery; \$539,000 steward's equipment; \$15,000 library; expenses of moving vessel, insurance, trial trip, etc., \$627,000; maintaining and guarding ship, \$650,000; inspection \$225,000—a total of \$8,166,000. The contract specifies delivery within 14 months under heavy penalty for any delay. Mr. Powell predicts the ship will pay.



# Experts in this Country and Abroad

to C. H. Sprague & Son and the ABSECON has been sold to A. H. Bull & Co. It also is learned that a combination of American and Chinese capital is interested in a new company which is negotiating with the war department for the transports SHERIDAN and another for operation along the Chinese coast to the Straits Settlements.

The shipping board has allocated the liners PALMETTO STATE and NUTMEG STATE to the Munson Steamship Co. for service to Rio Janeiro and Buenos Aires. These boats are identical with the AMERICAN LEGION and the SOUTHERN CROSS, and a fifth vessel of this 535-foot type will be allocated this line at a later date. The BUCKEYE STATE and HAWKEYE STATE, formerly allocated the Matson line to operate out of Baltimore via the Panama canal to Hawaii have been withdrawn. It now has been decided that four of the new 535's will be allocated the United States lines to operate in the transatlantic run with the GEORGE WASHINGTON and the AMERICA.

Transatlantic operations promise to pick up within the next month or so, especially for the passenger companies. The United American line, which purchased two fine passenger steamers from the Dutch flag has decided to rename these the RELIANCE and the RESOLUTE. They will make calls at Cherbourg and Boulogne in the run from New York to Hamburg.

Efforts are being made by two groups of Irish-Americans to establish a transatlantic line direct to Ireland. One of these, known as the Irish American line, has been incorporated with authority to issue \$500,000 capital stock. The other is being promoted to have a capital of \$2,000,000.

## New Lines Are Being Established

The Kerr line is establishing a line from Norfolk to the Far East and India. Southgate & Co. are their agents. The Garland line fleet which has been laid up for nearly a year has been chartered to carry grain to Black Sea ports. The Pacific Mail line's new service from New York to the Pacific coast met with al-

most instantaneous success and the American line declares that it is prevented from going into the inter-coastal passenger business only by the lack of suitable tonnage. The Isthmian line, owned by the United States Steel Corp., will not be prevented under the interstate commerce act from passing through the Panama canal, because of the indirect ownership in

## Operates 87 Services

ON THE 87 services now maintained with government vessels, the results are as follows: Baltimore, Philadelphia and New York to Genoa, Naples, Barcelona, and Marseilles gross revenue, \$57,000; expenses, \$55,000; New Orleans to Liverpool and Manchester: gross revenue, \$40,000; expenses, \$45,000; New York to Hamburg to Bremen: gross revenue, \$38,000; expenses, \$35,000; New York to French Atlantic ports: gross revenue, \$30,000; expenses, \$37,000; San Francisco and Los Angeles to Orient: gross revenue, \$75,000; expenses, \$99,000 and New York to Australia: gross revenue, \$100,000; expenses \$180,000.

## BUYING TONNAGE

Private Owners Believe Bottom Is Passed — Shipping Board Reports Two Sales — Operations Pick Up

railroads. The Munson liner MUNARGO will hereafter make only Nassau out from New York, whereas the MUNAMAR will not call at Nassau but serve only the western Cuban ports which are in the run of these ships. This schedule will be maintained at least until the end of the current season. The United Fruit Co. has inaugurated a regular coastal service between Kingston and the principal outports of Jamaica. The Old Dominion Transportation Co. will resume passenger services between New York and Virginia cities.

These developments indicate clearly that it is the consensus of opinion the worst of the shipping slump has passed and from now on things must improve. It is declared by leading steamship men that from now on rate cuts will not be made, but rather that they should advance. Beginning with the first of February, the Far Eastern conference was revived and rates generally out of New York and range ports were increased approximately \$2 a ton. Trading with the Orient has materially improved within the past few months and it is the anticipation of the steamship men these advances will hold.

To offset the contract made by the Cunard line with the Standard Oil Co., the shipping board has taken a contract with the Vacuum Oil Co. for transporting approximately 1,000,000 cases of oil to ports in the Levant and neighboring regions during the current year. The business will be handled by the Export Steamship Co. as agent for the shipping board. The board has started negotiations with the cotton and flour shippers of the South, the first conference having been held last month at New Orleans. The object of this conference is to develop traffic for American vessels and at the same time give assistance to American producers of cotton and flour.

## Chartering Active at Firm Rates

Chartering has continued active during the past month in the transatlantic grain and sugar trades, and also in time charter boats for West Indian and transatlantic trading. A steady demand has prevailed for additional boats for similar business. In the South America long voyage and all other trades, the requirements of shippers have been light. Rates have been firm at the basis of previous charters, with owners asking advances for prompt boats. One of the interesting features of the time charter market during the past month was in the size of the steamers signed up for the West Indies trade. Vessels of from 5000 to 9000 tons were taken. Several were placed in the neighborhood of \$1.50 for single round trips. Small boats which are generally considered better adapted to this trade have been able to command \$2.

Preparations are being made on the part of the



foreign lines to get ready for the large traffic expected this spring. The Lloyd Sabaudo is sending to New York the new liner CONTE ROSSO, which is described as the last word in luxury among Italian steamships. Furness, Withy & Co. are the New York agents for the line. The Lamport & Holt line has brought over the new liner VANDYCK, which is going into the trade between New York and Buenos Aires in competition with the Munson line. The VANDYCK is described as the finest British ship in this run.

### Foreign Runs Being Renewed

The giant British liner, AQUITANIA, has completed her winter renovation and has returned to service. The Leyland line has opened its Liverpool to New Orleans freight service with the DAKARIAN. The Canadian Pacific line is sending three of its big vessels to New York to initiate winter cruises. It is reported this line intends to use these boats hereafter in a transatlantic service which will extend its western terminus from Halifax to New York. The Canadian line plans a fortnightly service between England and the Orient, via Canada, and will use for the purpose its finest steamers and trains.

Having made definite plans for resuming services between New York and Bremen, the North German Lloyd line is said to intend to establish a service from Germany to Central American ports. The Hamburg-American line also is opening up a similar service. The first will operate out of Bremen while the latter will use Hamburg. The Hamburg-South American Steamship Co., according to reports, intends to double its capital. Reports were likewise current that the Hansa line of Germany intends to open New York offices and plans to establish services with American ports and with India.

Freight service of the Scandinavian-American and other allied lines of the United Steamship Co. of Copenhagen between Scandinavian and American, South Atlantic and Mexican gulf ports will soon be restored to prewar frequency. The Soviet government of Russia has purchased six small steamers from the British. One of these, formerly known as the ASHWIN, has been renamed the TROTSKY. The Cia. de Navagacao Lloyd Brasileiro is placing the new steamer CAXIAS in service between New York and east coast, ports of South America.

### Rate Parity Not Yet Maintained

Application of import and export rates has given the transpacific lines increased quantities of overland freight but the rate structure has not yet been thoroughly adjusted so as to maintain a parity between Atlantic, Gulf and Pacific ports. Negotiations to this end are in progress and Pacific steamship lines expect shortly to be able to bid for a portion of the business moving between eastern United States and the Orient.

Strenuous efforts are being made by European steamship operators to raise the wheat rate to the United Kingdom and the continent to 35 shillings. For three months, this trade route has been unprofitable with rates touching low levels. However, exporters claim they can not pay more than 30 shillings, basing their figures on the selling price of wheat on the Pacific coast. Some grain has moved in the last month but most of it was booked under 30 shillings. Rates on canned goods and other cargo shipped to northern Europe are also in a chaotic

condition although the situation has improved during the month and operators are hopeful this route can be stabilized in the near future.

Several additional time charters have featured the last month, two foreign ships being fixed at \$1.20 per deadweight ton per month, this being a slight increase over previous fixtures made on time. Several cheap charters for lumber to Australia have been closed, the rate being about \$15. In past years, Australia was a profitable route for lumber schooners from the Pacific coast but the sailer is practically eliminated at present because of steamship competition at rates which the sailing vessel can not meet.

### Steamers Underbid Sailers

Illustrating this point, a cargo of lumber was booked on a foreign steamship for South Africa at \$20.50. An American sailing ship figured on this business, first at \$27.50 and later at \$22.50 when the foreign tramp underbid the lower figure by \$2. The foreign steamer could make this low rate because she was fixed for other cargoes to take her around the globe. The latest charter for lumber to Chile was done at \$17.50 for a sailing vessel although another sailer was taken for similar business at \$17.50, Canadian exchange.

On the intercoastal route business continues active in both directions. The water lines have recently cut steel products from 75 cents to 60 cents per 100 pounds and are evidently prepared to anticipate retaliatory action by the railroads.

Shipping board vessels continue to lie idle at practically every American Pacific port. Operators are not favorable to the bareboat charter and large exporters have been chartering foreign ships at rates which American vessels can not consider. With the supply of tonnage so ample, shipowners do not anticipate any immediate relief and American sailing vessels especially will likely ride at anchor until conditions improve so as to afford them a living profit. Owners figure it cheaper to take their vessels out of service than to attempt operations at present going rates.

At the request of the Pacific Mail Steamship Co., operating a fleet of government ships, the shipping board withdrew the CREOLE STATE, the WOLVERINE STATE and the GRANITE STATE from the San Francisco-Philippines-India service and has reassigned two of them, CREOLE STATE and WOLVERINE STATE, in a direct Manila-San Francisco service, via Honolulu. The GRANITE STATE is to be returned to the Atlantic. The company's request was based on the fact available business did not justify the run. Other passenger ships operated by the company in China-Japan-Manila runs are to be continued.

Activity at the port of Boston showed a decided increase soon after the first of the year which continued until into February when a lull in demand was noticeable in nearly all markets. January was reported by several Boston shipping companies as the best month in a year or more, which considering the rough weather, is regarded as an exceptional showing. Grain destined for Russia under the government relief program has started to pass through Boston, and already 850,000 bushels have reached the port. This grain is being bagged, so that it can be immediately transferred to trains and transported to the various distributing points throughout

### January Reported Best Month



# Ocean Freight Rates

Per 100 Pounds Unless Otherwise Stated  
Quotations Corrected to Feb. 6, 1922, on Future Loadings

New York to	Grain	Provisions	Cotton (H.D.)	Flour	General cargo cu. ft.	100 lbs.	Finished steel	Coal from Virginia cities	From North Pacific Ports to	Lumber Per M. ft.
Liverpool.....	3/3	\$0.60	\$0.25	\$0.19	\$0.40	\$0.75	\$7.00T	.....	San Francisco.....	\$6.50 to \$7.00
London.....	3/3	0.60	0.25	0.19	0.40	0.75	7.00T	.....	South California.....	7.50 to 8.00
Christiania.....	\$0.23	0.40	0.50	0.28	0.45	0.90	8.00T	\$5.00T	Hawaiian Islands.....	10.50 to 12.00
Copenhagen.....	0.23	0.40	0.50	0.20	0.45	0.90	8.00T	5.00T	New Zealand.....	15.00 to 16.00
Hamburg.....	0.18	0.35	0.25	0.23	0.45	0.82½	9.00T	4.50T	Sydney.....	15.00 to 16.00
Bremen.....	0.18	0.35	0.25	0.23	0.45	0.82½	9.00T	4.50T	Melbourne-Adelaide.....	18.00 to 20.00
Rotterdam.....	0.16	0.32½	0.30	0.20	0.40	0.75	8.00T	4.00T	Oriental ports.....	15.00 to 17.00
Antwerp.....	0.16	0.32½	0.30	0.20	0.40	0.75	6.00T	4.00T	Peru-Chile.....	17.00 to 18.00
Havre.....	0.15	0.50	0.35	0.20	0.40	0.75	8.00T	4.50T	South Africa.....	20.50 to 22.50
Bordeaux.....	0.15	0.50	0.35	0.20	0.40	0.75	8.00T	4.50T	Cuba.....	18.00
Barcelona.....	0.22½	20.00T	0.55	10.00T	—20.00T—	—	12.00T	5.00T	United Kingdom.....	90s
Lisbon.....	0.22½	20.00T	0.55	10.00T	—20.00T—	—	12.00T	4.50T	United Kingdom (ties).....	70s
Marseilles.....	0.22½	0.75	0.75	0.40	—20.00T—	—	8.00T	4.75T	New York.....	16.00 to 18.00
Genoa.....	0.24	0.75	0.42½	0.50	0.50	1.00	9.00T	4.50T	New York (ties).....	15.00
Naples.....	0.24	0.75	0.42½	0.50	0.50	1.00	9.00T	4.50T	Buenos Aires.....	17.00
Constantinople.....	0.25	14.00T	0.75	0.25	—16.00T—	—	16.00T	6.00T		
Alexandria.....	.....	.....	.....	.....	—17.00T—	—	.....	6.00T		
Algiers.....	0.35	0.85	.....	0.40	—22.00T—	—	12.00T	4.75T	Flour and Wheat	
Dakar.....	.....	15.50T	.....	15.00T	—20.00T—	—	10.00T	.....	Oriental ports.....	\$6.00
Capetown.....	10.50T	23.00T	.....	15.00T	—23.00T—	—	12.50T	.....	U. K.....	30s to 35sT
Buenos Aires.....	.....	.....	.....	.....	—29.00T—	+	8.00T	3.50T	Scandinavia.....	30s to 35sT
Rio de Janeiro.....	.....	.....	.....	.....	—18.00T—	+	8.00T	3.50T	Mediterranean.....	30s to 35sT
Pernambuco.....	.....	.....	.....	.....	—20.00T—	+	8.00T	3.75T	Steel	
Havana.....	0.17½*	0.37½*	.....	0.17½*	0.47*	0.94*	0.20*	1.50T	Oriental ports.....	\$ 5.00T
Vera Cruz.....	.....	0.45	.....	0.30	0.45	.90	0.35	2.25T	Cotton	
Valparaiso.....	.....	1.07	.....	0.75	—24.00T—	—	12.00T	4.00T	Oriental ports.....	\$10.00T
San Francisco.....	.....	0.75	.....	0.85	.....	.....	0.60	.....	Apples	
Sydney.....	.....	.....	.....	.....	20.00 to 25.00	—	11.50	.....	United Kingdom.....	\$1.00 per box
Calcutta.....	.....	21.00T	.....	.....	—21.00T—	—	18.00T	.....	Copper	
T—ton.	†Landed.	††Heavy products limited in length.	.....	.....	.....	.....	.....	.....	Oriental ports.....	\$6.50

## Principal Rates To and From United Kingdom

Grain, River Plate to United Kingdom.....	34	6	Coal South Wales to Buenos Aires.....	13	6
Coal, South Wales to Near East.....	12	6	Iron ore, Bilbao to Middlesbrough.....	7	0
Coal, Newcastle to France.....	6	0	General British market, six months time charters, per ton per month.....	5	0

## Bunker Prices

At New York			At Philadelphia			Other Ports		
	Coal alongside per ton	Fuel oil 16 baume per barrel		Coal per ton	Fuel oil 16 baume per barrel		Boston coal, per ton,	\$7.10
Jan. 8, 1921	\$7.00	\$2.94	Jan. 10, 1921	\$9.45	\$2.08		Boston oil, per barrel	1.35
Apr. 6.....	6.40 @ 6.75	1.95	Apr. 7.....	5.75 @ 6.00	1.98		Cardiff, coal, per ton.	1's
July 8.....	5.75 @ 6.25	1.45	July 7.....	4.90 @ 5.45	1.47½		London, coal, per ton.	22s
Oct. 4.....	5.85 @ 6.15	1.45	Oct. 6.....	*6.10 @ 6.25	1.80		Antwerp, coal, per ton	25s
Jan. 9, 1922	5.50 @ 5.90	1.25	Jan. 9, 1922	*5.10 @ 5.35	1.50			
Feb. 6.....	5.50 @ 5.90	1.20	Feb. 8.....	*4.90 @ 5.25	1.25			

\*Trimmed in.

Russia. Grain for other countries has been holding up fairly well, and the Mediterranean trade is reported as about back to a normal basis, although the failure of the recent Greek loan has held down exports to that country.

In most trade channels from Boston, the number of American bottoms compared with foreign, is at least holding its own. In the Egyptian cotton trade, the proportion of American bottoms has increased, until now fully 50 per cent of all the cotton for the western hemisphere is shipped in American bottoms. The service from Boston to Santos continues to be popular and regular sailings with practically full cargoes are maintained. The February lull is regarded as temporary and seasonal and marine authorities feel that the approach of spring will see a return to greater activity in the port of Boston. The Janu-

ary demand which was common at most eastern ports resulted in an advance in freight rates in practically all commodities and it may be that the present lull is due in some measure to this rate advance.

Several new lines are announced for Boston. C. H. Sprague & Son have started a line from Boston direct to Manchester and report excellent results on the first two sailings. The Cunard line plans to resume the old Boston-Queenstown-Liverpool passenger and freight service. Directors of the American Bahamian Steamship Co. have been considering the establishment of a line between Boston and the Bahamas. The steamer MATILDE PEIRCE recently sailed for Genoa to establish what is expected to be a permanent Boston-Italian service. The principal export since the first of the year has been grain to Russia, Scandinavia and the Mediterranean.

# Steel Exports Aid British Shipping

From Our European Manager

London, Feb. 16. (By Cable)—Demand for tonnage is light. Some activity has developed in grain trade from the River Plate and from Australia. The brightest feature of the market is the development of heavy exports in iron and steel. In January, British exports of steel products were greater than those of any other

country, running up to 261,000 tons, including 34,000 tons of tin plate. Imports in the same month were 89,000 tons. German exports for December were 216,000 tons, the smallest total since July. This export trade has strengthened the general cargo position. Coal chartering continues in fair volume with low rates.



## Pick Date and Place for Next Marine Show

The week of Nov. 6 has been selected for the next annual marine exposition of the American Marine association, formerly the Marine Equipment Association of America, and the Grand Central Palace, New York, has been secured for the show. The Society of Naval Architects and Marine

Engineers has again agreed to cooperate and has advanced its convention from Nov. 13 to Nov. 6. Efforts are being made also to have the Marine Engineers' Beneficial association and the American Society of Marine Designers hold their conventions in New York the week of the exhibition.

The port of Astoria is desirous of deepening the channel to the sea at the mouth of the Columbia river.

## Postpone Wage Meeting

The conference scheduled for San Francisco early in February on the question of reducing the wages of stevedores 10 cents an hour, was postponed indefinitely. Officials of the stevedoring companies as well as heads of the unions representing waterfront employes are unable to say just when the question will come up again for settlement.

# Diesel-Electric Freighter in Service

**A**FTER her official sea trials last month, the *FORDONIAN*, the first large freight ship equipped with the direct-connected, diesel-electric drive has been turned over to her owner and assigned for service. The completion of this installation is important in maritime history. Prior to this, a number of ships have been equipped with steam turbines to turn electric motors which drive the propellers. Some small installations have also been made of diesel engines which furnish power to an electric drive equipment.

The first experiment with the diesel-electric drive was made on the Great Lakes when the *TYNEMOUNT* was equipped with a diesel engine and an alternating current motor. In this experimental venture, as was pointed out in an article in the April, 1921, issue of *MARINE REVIEW*, full success was not realized. In 1919, a diesel-electric drive was installed on the fishing boat *MARINER*, Boston. That installation was successful but the *MARINER* measures but approximately 500 tons.

In the meantime, the shipping board has had a number of the government's freight boats equipped with the turbine-electric drive. A turbine engine will normally make 3000 revolutions per minute, and with that high speed it has been necessary to install an alternating current motor. On the other hand, the diesel engine is low speed and consequently on the *FORDONIAN* a direct-current motor has been used.

In considering propelling equipment, many engineers now state that for long voyages with a continuous headway not requiring great speed the diesel engine alone is the most economical medium of propulsion. For short runs, the steam engine has been preferred. In congested waters where maneuvering is dangerous many advocate the electric drive. The particular installation made on the *FORDONIAN*, therefore, offers some interesting possibilities.

This ship is owned by the American Mediterranean Steamship Co., Inc., 5 State street, New York, and is under

the agency management of McDonnell & Truda, of the same address. She will be used in trade between New York and Havana. The harbor of New York is always congested and the harbor of Havana is small with a very narrow entrance. At times, Havana is the most congested port in the world and shipping has been so dense there that masters have found it almost impossible to turn around without nosing some neighboring vessel. Therefore, the electric drive on the *FORDONIAN* will be given a test in the matter of control.

The conversion of the *FORDONIAN* to a diesel-electric drive was made by the Tebo Yacht Basin Co., of the Todd Shipyards Corp., and her successful sea trials were made from South Brooklyn, N. Y., where the repair yards are located. Capt. C. J. Dyer of the *FORDONIAN* declared after the trials that he was highly pleased over the ease with which she was maneuvered and controlled in the congested shipping of New York bay. W. N. Hooks, chief engineer, was equally enthusiastic.

The *FORDONIAN* developed a speed of 10.12 knots on the trial which greatly exceeded the expectation of the captain based on his experience with the ship under her old form of propulsion, which was single screw gas rigged. In order to give full propeller speed of 120 revolutions per minute, the motor developed 720 horsepower at the propeller shaft. With the ship fully loaded, the motor will be called upon to deliver the full rated horsepower of 850 in order to turn the propeller at this speed.

The *FORDONIAN* represents the culmination of several years of development work in successfully adapting electric transmission to the oil engine for large ships. The electric apparatus is of the General Electric Co. type, consisting of two 350-kilowatt generators each driven by a 2-cycle, 4-cylinder Ansaldo San Giorgio diesel engine of 500 brake horsepower. Motive power is supplied by a double armature, 850-horsepower motor direct-connected to the propeller and

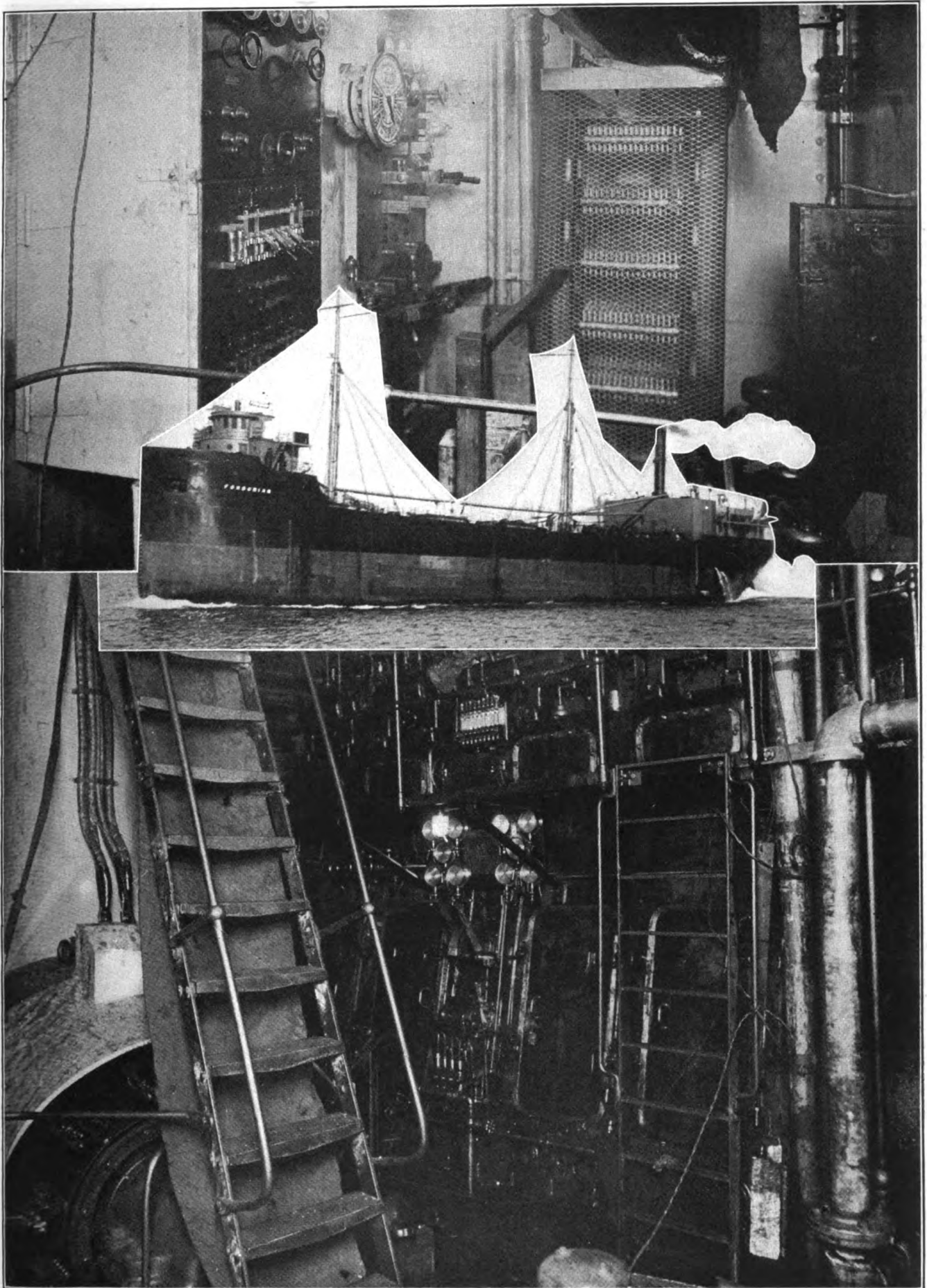
designed to furnish a speed of about nine to ten knots.

W. H. Wild, engineer of the General Electric Co., explained to a party of more than 50 prominent marine engineers and shipping men who witnessed the tests that the ship was operated in much the same manner as an ordinary trolley car. The control is from the engine room and has been devised to give the utmost flexibility of operation. The main control equipment consists of a panel on which are mounted the various switches, field rheostats and instruments; a master controller for operating the contactors of the control group; the control group for starting and reversing the motor, and a starting resistor and motor field resistor for obtaining lower speed ranges. The normal operating propeller speed is 120 revolutions per minute. The control arrangement allows for the use of either or both generators supplying current to the propeller motor, depending upon the speed requirements.

The *FORDONIAN* was previously a gas rigged vessel, that is, she had the straight diesel engine drive, and her speed was registered at 9 knots. She was built in 1912, and had but one screw. She measures 3800 tons deadweight, or 2367 tons gross. She is 257 feet long, 42-foot beam and 26-foot draft. Her conversion to the diesel-electric drive was made under the supervision of J. Marwitz, superintending engineer for the owner.

Marine engineers have expressed considerable interest in the experiment with the *FORDONIAN* in view of the shipping conditions which are now prevailing throughout the world. The shipping board, in its search for cheap propulsion, has advertised for sale a number of ships with the proviso that the purchaser shall equip them with diesel engines. Large diesel engines are still considered by some steamship owners as experimental. But when using an electric motor for the drive and a diesel engine merely to turn the motor over, the question of size is avoided as a comparatively small diesel is required.





FREIGHTER FORDONIAN, LARGEST CARRIER EQUIPPED WITH GAS-ELECTRIC DRIVE. ABOVE, CONTROL BOARD. BELOW, LOOKING AFT SHOWING PORT ENGINE AND PROPELLING MOTOR



# Rate War Appears in Insurance

Marine Underwriters Disturbed by Drastic Reduction Made  
by a Large Company—Cuts Range from 20 to 30 Per Cent

**D**ESPITE the fact that 1921 was a record bad year for marine underwriters and 1922 so far has not shown any great improvement, a large insurance company has succeeded in disturbing the market by starting what may well develop into a furious rate war for the purpose of taking premiums regardless of cost. Figures quoted by this company are from 20 to 30 per cent below the rates which have been ruling for more than a year. The tariff on oil from Mexico to New York is reduced nearly 20 per cent and the rate from Mexican to Gulf ports of the United States also comes in for a considerable reduction. The largest cut, however, is on textile imports from Europe, the reduction being in some cases as much as 30 per cent.

Leading underwriters are not concealing their alarm. The representative of one company commenting on this drastic departure said:

"This innovation has come as an annoying surprise to us and I suppose to other underwriters who have been offered business on the reduced basis. Our firm has been handling a large oil business and one can imagine how disconcerted we were when we learned that an underwriting concern had determined to secure as much business as is possible by quoting a rate below that which they had been asking and which had been considered a ruling figure throughout the market. There seems to be no alternative than to meet the reduction. When the reduction in premiums on oil was made known, we had no idea that it was the forerunner of other reductions but when a little later we were informed that if we wanted to participate in the distribution of the coverage placed on textile imports it would be necessary for us to match the figures of the company which had started the reduction, the declaration took the form of an ultimatum and started us thinking that the long looked-for marine rate war had surely arrived. How far it will extend or how many trades will be affected, it is hard to predict but it is going to make rough sailing for some underwriters."

## Draft Short Form Policy

**A** NEW short form marine insurance policy, which it is proposed shall be used universally throughout the marine market as a substitute for certificates when assureds request policies, has been completed by the forms committee of the American In-

stitute of Marine Underwriters and has been sent to marine offices for approval. The new form contains all the essential clauses necessary to protect the insured or the assignee legally within the definition of a policy as stated by the English court which ruled that certificates were not policies. The entire policy is printed on a single sheet of paper no wider than a sheet of business paper and only slightly longer. The compact policy form now under consideration will not involve such expense of printing and distributing as the actual bulky policies would require for distribution to the thousands of open policy holders. The standardization and simplification of marine policies has long been urged by banking houses, which are required to quickly inspect shipping papers for evidence of adequate protection against losses on merchandise consigned to foreign ports.

## Study Mutual Insurance

**A** MOVEMENT to mutualize hull insurance in Norway is reported from Christiania where a meeting was held recently to discuss the advisability of taking insurance out of the hands of private companies. Arguments in favor of mutual insurance were based upon the saving of reinsurance commission which would be avoided if insurance were carried on a mutual basis. Norwegian underwriters have had a difficult year and their troubles have been increased too by English companies which cut rates 20 and even 25 per cent.

## Contract Is Not Policy

**I**N A recent admiralty suit brought in the United States district court by J. Aron & Co. against the United States Lloyds, Judge Learned Hand held that a marine contract is not a valued policy. The decision said that in a contract of marine insurance on a particular cargo for a particular voyage, effected by a binder, incorporating by reference the New York lighterage form, the incorporation of the words "valued at sum insured" does not change the normal character of the policy as a contract of indemnity under which the insured in case of loss is entitled to recover

only the actual value of the property lost.

The sole contract to be considered was the binder, that being the only paper which was executed before the loss, but that, the ruling continued, incorporated the New York lighterage form so that the two papers had to be read together. Taken alone, the lighterage form was found ambiguous enough, providing for an indemnity agreement and that was all. The binder part was in the writing of the words "valued at the sum insured," which therefore, took precedence over anything inconsistent with it in the New York lighterage form. The libellant had to maintain that of itself the phrase is equivalent to a provision agreeing that the assurer pay the face of the policy as the liquidated value of the goods, or that custom has given it that meaning.

## Sugar Now Leading Risk

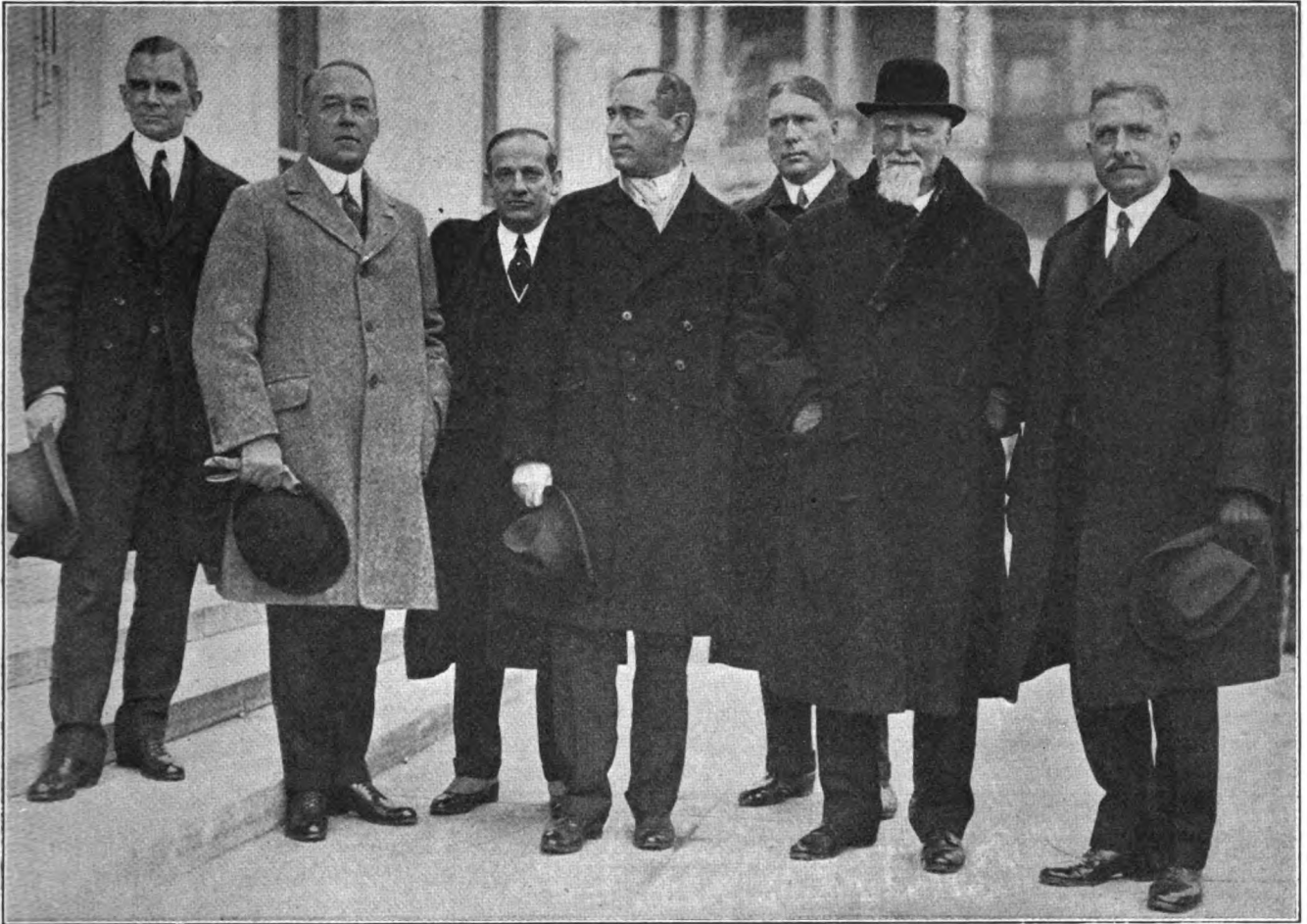
**M**ARINE underwriters report that conditions, at Havana are steadily improving and that the theft and pilferage hazard, which has been the worst on record, has been steadily improving despite the dock labor situation. The fact that goods are being moved fairly promptly and are no longer left neglectedly piled up out in the open is explained as the chief cause for the betterment in the situation.

With Cuba and Porto Rico starting to ship large consignments of sugar to the United States, cotton has begun to take second place as the ruling marine risk of the hour, much to the relief of the underwriters, who have suffered a deluge of shore claims caused by the burning of cotton by fires in compresses and warehouses.

## Offer Insurance Courses

**B**OTH New York university and Columbia university recently announced a special course in marine insurance for the benefit of underwriters and brokers and persons handling insurance for banks, foreign trade organizations and shippers. The New York university course, it is announced, will present marine insurance in an interesting and practical way without making the treatment of the subject too exhaustive. The course will be





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**PACIFIC SHIPPING COMMITTEE CALLS UPON PRESIDENT HARDING IN REGARD TO ORGANIZING \$30,000,000 COMPANY TO OPERATE SHIPPING BOARD VESSELS**

A committee representing the principal ports of the Pacific coast recently met Chairman Lasker of the United States shipping board in regard to the formation of a \$30,000,000 corporation among these ports to operate shipping board vessels in and out of the Pacific coast ports. This committee presented to Mr. Lasker and to President Harding the exact situation of the proposed pool, the financial backing obtainable, the combined forces of the ports involved, and the opportunities for the establishment of such a corporation to restore the American merchant marine to the Pacific ocean. Among the committeemen several are shown in the above photograph, with Chairman Lasker, as they appeared at the White House. From left to right, the visitors are: Paul Shoup, K. B. Kingsbury, Herbert Fleishhacker, Chairman Lasker, H. F. Alexander, Capt. Robert Dollar and G. J. Baldwin

taken up in this university as follows:

Marine insurance and foreign trade, the historical development of marine insurance, marine insurance and its relation to commerce, marine insurance as a contract, modes of conveyance, the perils usually insured against, prior insurance and double or simultaneous insurance, implied warranties and the seaworthiness of vessels, cargo insurance and general cargoes, hull insurance, fleet insurance and single risk insurance, freight insurance, war risk insurance, re-insurance, treaties, excess insurance and participating insurance.

\* \* \* \*

### Denies Collision Claims

**T**HE United States Supreme Court recently settled a legal point involving claims of several million dollars. The decision affects some 300 cases in which privately owned vessels collided with other vessels while under government operation. The claimants contended that a lien at-

tached as soon as the collision occurred and that although these liens were not enforceable because of the fact that the government had not consented to be sued, nevertheless they became enforceable as soon as the vessel passed into other than the government's hands. The Supreme Court sustained the contention of the government that the lien never came into existence because the government was immune from liability for a tort.

\* \* \* \*

### Modifies Disbursement

**A**DVICES received from England state that the underwriters institute has modified the 15-per cent disbursement clause by the reduction of the limitations stated by 5 per cent. Hereafter, "policy proof of interest" insurances are not to exceed 10 per cent of the insured value while freight and chartered freight for 12 months shall not exceed 15 per cent of the insured value with a proportionate reduction for shorter periods. The

purpose of this modification is to improve hull conditions, it is said. The institute has also recommended that insurance of foreign vessels other than American, shall be effected with the new clause, while it is urged that excessive disbursement allowances shall not be countenanced in the case of American risks.

\* \* \* \*

### Losses on Sailers Heavy

**U**NDERWRITERS are being particularly cautious in examining sailing vessels as the losses on this type of boat as a class have been especially heavy during the past few weeks. While the hazard is usually considerably increased during the winter season when storms are frequent the number of sailing vessels which have been lost or damaged so far this year has been large. Recently the SOUTHERN CROSS brought into port the crew of the schooner BLUE PETER which was on its way from Buenos Aires to Philadelphia when it caught fire.

# Disarmament Cripples Shipyards

New World Peace Pact Suspends Construction for 10 Years and  
Then Permits Resuming Work at 50 Per Cent of Present Rate

**T**ERMINATION of competition in building naval armaments, as provided for in the 5-power treaty adopted at Washington Feb. 1, strikes a powerful blow at the shipyards of the powers signing the treaty. Yards which for years have been part of the national bulwarks of defense and which have been more essential to the nations in their protective programs than in their merchant marine activities—except in time of war—today face a situation which may mean the permanent shutting down of some of them.

Equipped to the highest degree for quantity and quality production of a complete line of fighting craft for their respective national governments, and at times of warships for other countries, these yards now are seeking some line

of industrial endeavor by which their facilities may still be used and net a profit with their organizations more or less intact. The majority will enter

the stern competition for merchant construction. Some of the war built shipyards already have turned their facilities into other engineering fields, several having taken up steel fabrication and the erection of boilers, tanks and other structural work.

Careful study of naval ship construction over the past 12 years shows that the yards of the five leading powers of the world now entering into the disarmament pact, constructed an aggregate of 3,600,000 tons of fighting ships. This is an average of 300,000 tons a year, being high, no doubt, because of the war requirements which swelled the world's fleets both in number of ships and in tonnage represented.

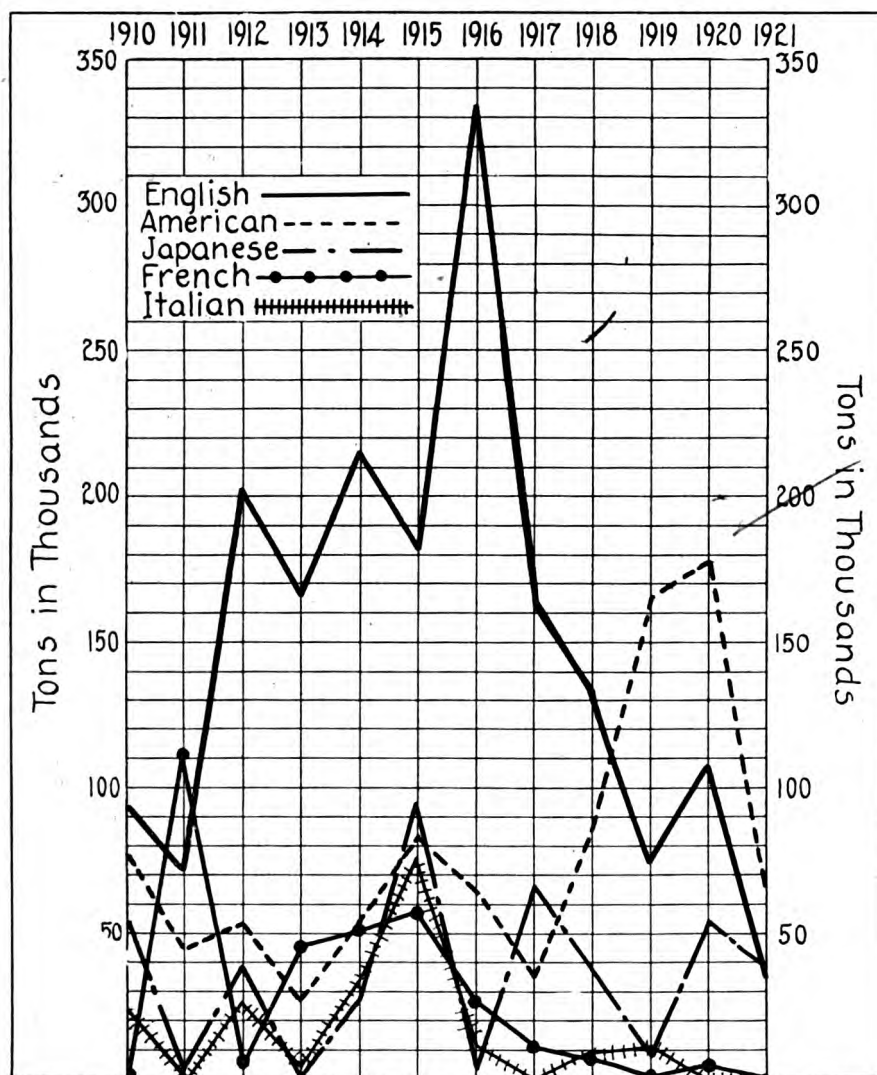
For the next 10 years with the exception of the finishing of two American warships already launched and the construction of two 35,000-ton ships allowed England under the tonnage ratio, the yards will have no capital ship tonnage under construction for the five powers signing the treaty. This will mean some of them will either have to get into other lines or shut down, unless sufficient merchant tonnage is booked to justify their operation.

Beginning in 1931 and continuing for 11 years, the same yards, provided they are still in existence as naval ship constructors, will be allocated naval tonnage aggregating for the period 1,715,000 tons. For each of the 11 years, this means an average of 156,000 tons. That is slightly more than 50 per cent of the yearly average for the past 12 years. For the full 20 years period, 1922 to 1942, it means an average of 85,000 tons—just about 2½ capital ships a year for all the yards of five countries; one half ship per nation per year.

What the yards of each nation actually built in the past 12 years is shown in

## Naval Construction for Last Twelve Years

	Displacement Tonnage				
	English	American	Japanese	French	Italian
1921.....	34,200	65,200	39,180	905	00000
1920.....	106,885	178,276	54,290	2,500	00000
1919.....	72,948	164,839	9,600	1,980	10,312
1918.....	136,844	87,513	36,360	7,005	9,317
1917.....	163,465	35,600	66,768	10,066	00000
1916.....	333,614	62,800	3,340	27,530	10,327
1915.....	180,510	82,940	93,205	56,420	75,530
1914.....	212,360	54,940	27,500	50,040	31,500
1913.....	165,300	27,000	1,210	46,240	3,266
1912.....	201,550	52,000	37,055	6,765	23,870
1911.....	70,400	43,650	2,300	111,170	00000
1910.....	96,150	78,000	53,750	00000	22,460



NAVAL CONSTRUCTION SINCE 1910 IN BOTH PRIVATE AND GOVERNMENT YARDS OF THE FIVE COUNTRIES INCLUDED IN THE DISARMAMENT AGREEMENT



the accompanying table. How the trend of naval construction in the various countries fluctuated in the same period may be seen in the accompanying chart.

Under the terms of the treaty, the United States, following the scrapping of

the vessels provided in the pact, will have a total tonnage of 500,650; Great Britain, 580,540 tons; France, 221,170 tons; Italy, 182,800 tons and Japan, 301,320 tons. After the 10-year naval holiday the United States by its replacement con-

struction, is to have not to exceed 525,000 tons of capital ships, Great Britain 525,000 tons, Japan 315,000 tons and France and Italy, 175,000 tons each. These last figures are on the now famous ratio of 5:5:3:1.75:1.75.

## Naval Strength of Five Great Powers as Allowed for Next 20 Years

### United States

To be scrapped at once (age in parentheses)

Maine (20), Missouri (20), Virginia (17), Nebraska (17), Georgia (17), New Jersey (17), Rhode Island (17), Connecticut (17), Louisiana (17), Vermont (16), Kansas (16), Minnesota (16), New Hampshire (15), South Carolina (13), Michigan (13), Washington (0), South Dakota (0), Indiana (0), Montana (0), North Carolina (0), Iowa (0), Massachusetts (0), Lexington (0), Constitution (0), Constellation (0), Saratoga (0), Ranger (0), United States (0).\*

Year	Ships laid down	Ships completed	Ships scrapped (age in parentheses)	Ships retained. Summary	
				Pre-Jutland	Post-Jutland
1922	A. B.†		Delaware (12), North Dakota (12)	15	3
1923				15	3
1924				15	3
1925				15	3
1926				15	3
1927				15	3
1928				15	3
1929				15	3
1930				15	3
1931	C. D.			15	3
1932	E. F.			15	3
1933	G.			15	3
1934	H. I.	C. D.	Florida (23), Utah (23), Wyoming (22)	12	5
1935	J.	E. F.	Arkansas (23), Texas (21), New York (21)	9	7
1936	K. L.	G.	Nevada (20), Oklahoma (20)	7	8
1937	M.	H. I.	Arizona (21), Pennsylvania (21)	5	10
1938	N. O.	J.	Mississippi (21)	4	11
1939	P. Q.	K. L.	New Mexico (21), Idaho (20)	2	13
1940		M.	Tennessee (20)	1	14
1941		N. O.	California (20), Maryland (20)	0	15
1942		P. Q.	Two ships West Virginia class.	0	15

\*The United States may retain the Oregon and Illinois, for noncombatant purposes, after making them ineffective for war service.

†Two West Virginia class.

Note—A, B, C, D, etc., represent individual capital ships of 35,000 tons standard displacement, laid down and completed in the years specified.

### British Empire

To be scrapped at once (age in parentheses)

Commonwealth (16), Agamemnon (13), Dreadnought (15), Bellerophon (12), St. Vincent (11), Inflexible (13), Superb (12), Neptune (10), Hercules (10), Indomitable (13), Temeraire (12), New Zealand (9), Lion (9), Princess Royal (9), Conqueror (9), Monarch (9), Orion (9), Australia (8), Agincourt (7), Erin (7), four building or projected.\*

Year	Ships laid down	Ships completed	Ships scrapped (age in parentheses)	Ships retained. Summary	
				Pre-Jutland	Post-Jutland
1922	A. B.†			21	1
1923				21	1
1924				21	1
1925	A. B.		King George V (13), Ajax (12), Centurion (12), Thunderer (13)	17	3
1926				17	3
1927				17	3
1928				17	3
1929				17	3
1930				17	3
1931	C. D.			17	3
1932	E. F.			17	3
1933	G.			17	3
1934	H. I.	C. D.	Iron Duke (20), Marlborough (20), Emperor of India (20), Benbow (20)	13	5
1935	J.	E. F.	Tiger (21), Queen Elizabeth (20), Warspite (20), Barham (20)	9	7
1936	K. L.	G.	Malaya (20), Royal Sovereign (20)	7	8
1937	M.	H. I.	Revenge (21), Resolution (21)	5	10
1938	N. O.	J.	Royal Oak (22)	4	11
1939	P. Q.	K. L.	Valiant (23), Repulse (23)	2	13
1940		M.	Renown (24)	1	14
1941		N. O.	Ramillies (24), Hood (21)	0	15
1942		P. Q.	A (17), B (17)	0	15

\*The British Empire may retain the Colossus and Collingwood for non-combatant purposes, after making them ineffective for war service.

†Two 35,000-ton ships, standard displacement.

Note—A, B, C, D, etc., represent individual capital ships of 35,000 tons standard displacement laid down and completed in the years specified.

#### NOTE APPLICABLE TO ALL THE TABLES

The order above prescribed in which ships are to be scrapped is in accordance with their age. It is understood that when replacement begins according to the above tables the order of scrapping in the case of the ships of each of the contracting Powers may be varied at its option; provided, however, that such Power shall scrap in each year the number of ships above stated.

### Japan

To be scrapped at once (age in parentheses)

Hizen (20), Mikasa (20), Kashima (16), Katori (16), Satsuma (12), Aki (11), Settsu (10), Ikkoma (14), Ibuki (12), Kurama (11), Amagi (0), Akagi (0), Kaga (0), Tosa (0), Takao (0), Atago (0). Projected program eight ships not laid down.\*

Year	Ships laid down	Ships completed	Ships scrapped (age in parentheses)	Ships retained. Summary	
				Pre-Jutland	Post-Jutland
1922				8	2
1923				8	2
1924				8	2
1925				8	2
1926				8	2
1927				8	2
1928				8	2
1929				8	2
1930				8	2
1931	A.			8	2
1932	B.			8	2
1933	C.			8	2
1934	D.	A.	Kongo (21)	7	3
1935	E.	B.	Hiyei (21), Haruna (20)	5	4
1936	F.	C.	Kirishima (21)	4	5
1937	G.	D.	Fuso (22)	3	6
1938	H.	E.	Yamashiro (21)	2	7
1939	I.	F.	Ise (22)	1	8
1940		G.	Hiuga (22)	0	9
1941		H.	Nagato (21)	0	9
1942		I.	Mutsu (21)	0	9

\*Japan may retain the Shikishima and Asahi for noncombatant purposes, after making them ineffective for war service.

Note—A, B, C, D, etc., represent individual capital ships of 35,000 tons standard displacement laid down and completed in the years specified.

### France

Year	Ships laid down	Ships completed	Ships scrapped (age in parentheses)	Ships retained. Summary	
				Pre-Jutland	Post-Jutland
1922				7	0
1923				7	0
1924				7	0
1925				7	0
1926				7	0
1927	35,000 tons			7	0
1928				7	0
1929	35,000 tons			7	0
1930		35,000 tons	Jean Bart (17), Courbet (17)	5 (*)	
1931	35,000 tons			5 (*)	
1932	35,000 tons	35,000 tons	France (18)	4 (*)	
1933	35,000 tons			4 (*)	
1934		35,000 tons	Paris (20), Bretagne (20)	2 (*)	
1935		35,000 tons	Provence (20)	1 (*)	
1936		35,000 tons	Lorraine (20)	0 (*)	

\*Within tonnage limitations; number not fixed.

Note—France expressly reserves the right of employing the capital ship tonnage allotment as she may consider advisable, subject solely to the limitations that the displacement of individual ships should not surpass 35,000 tons, and that the total capital ship tonnage should keep within the limits imposed by the present Treaty.

### Italy

Year	Ships laid down	Ships completed	Ships scrapped (age in parentheses)	Ships retained. Summary	
				Pre-Jutland	Post-Jutland
1922				6	0
1923				6	0
1924				6	0
1925				6	0
1926				6	0
1927	35,000 tons			6	0
1928				6	0
1929	35,000 tons			6	0
1930				6	0
1931	35,000 tons	35,000 tons	Dante Alighiere (19)	5 (*)	
1932	45,000 tons			5 (*)	
1933	25,000 tons	35,000 tons	Leonardo da Vinci (19)	4 (*)	
1934				4 (*)	
1935		35,000 tons	Giulio Cesare (21)	3 (*)	
1936		45,000 tons	Conte di Cavour (21), Duilio (21)	1 (*)	
1937		25,000 tons	Andrea Doria (21)	0 (*)	

\*Within tonnage limitations; number not fixed.

Note—Italy expressly reserves the right of employing the capital ship tonnage allotment as she may consider advisable, subject solely to the limitations that the displacement of individual ships should not surpass 35,000 tons, and that the total capital ship tonnage should keep within the limits imposed by the present Treaty.

# Editorial

## Helping Out the Early Buyers

ONE result of the old shipping board's foolish sales policy was to drive buyers of government vessels into receivership. Firms that were forced to pay \$200 or more a ton found bankruptcy inevitable when ship values dropped to \$50 a ton and less. These 'pioneer purchasers' have finally won respect for their claim to better treatment. The new shipping board has just announced its intention to protect these purchasers, as they are largely the organizations which must make up the nucleus of the new American shipping business. Each company will have its case handled individually.

The companies should be allowed credit for their payments against a reappraised value for their ships. Killing the most enterprising of the new American shipping companies by contributing to their bankruptcy will not build up a merchant marine.

## Equal Chance for Passenger Boats

ABOUT 250,000 Americans take an ocean trip each year. If one-half of these used passenger ships flying the American flag, enough vessels to carry them would not be available. That fact is worth recalling. Appeals to support the merchant marine for patriotic motives have never won out. But in the case of freight, selfish reasons are bringing American manufacturers to demand American ships for hauling American goods. It is the surest method of meeting competition successfully.

American flag passenger vessels are comparatively new, but today the traveler has equal or better facilities in American ships whether he is bound to Europe, South America or the Orient. To maintain these ships requires only a 50-50 treatment by the American traveler.

## Costly Free Trade Experiment

IN THE words of Winthrop L. Marvin, vice president of the American Steamship Owners' association "there would be no problem of the American merchant marine today if the United States, the most stalwart protectionist nation in the world, had not unconsciously chosen its overseas shipping, the most intensively competitive business in the world, for its one free trade experiment. Oracular protests that the American people are not a maritime people; that they are absorbed in domestic affairs, that they can make more money at home than on the hazardous ocean, are humbug spread by adroit gentlemen from overseas who for six decades have been receiving several hundred million dollars a year out of their tidy monopoly of American overseas freight and passenger traffic."

Behind their tariff wall, many American industries have grown so strong that they are now disposed to regard protection as an economic fallacy. But their very

size is driving these industries to seek an export outlet for their overgrown plants. And the volume of this export trade will depend quite largely on whether a helpful American merchant fleet carries the products or whether foreign ships, naturally anxious to promote the welfare of their own merchants, carry the goods.

The government's wasteful expenditures during the war for shipbuilding would have subsidized a privately owned American merchant marine for 500 years. American shipping needs intelligent encouragement instead of the ignorant mishandling which nearly drove it out of existence.

## Powell Favors Leviathan Repair

AN \$8,200,000 experiment is being made by the government. That is the amount of money it will cost to recondition the LEVIATHAN and have her in service by April 15, 1923. Whether the money spent will be a dead loss or not is for the future to disclose.

But it is encouraging to find a marine expert of the caliber of Joseph W. Powell, formerly in charge of shipbuilding for the Bethlehem interests and just now rounding out six months voluntary service for the shipping board, heartily in sympathy with the plan.

"I believe the reconditioning of the LEVIATHAN is good business, from the standpoint of investment required," testified Mr. Powell. "I believe it is an essential step toward the establishment of a permanent merchant marine." Mr. Powell is also sponsor for the statement that the LEVIATHAN will earn 10 per cent on her reconditioning cost. This earning is figured after making charges for full insurance, interest and depreciation, allowing for only one-third of her passenger capacity being used. "We charge everything," he testified, "that a business man would charge in a business venture and went more than the limit in being conservative."

## Why Hold On to These Contracts

PREFERENTIAL contracts with foreign steamship lines may be merely empty documents as American railroads claim. If they are, the reluctance of the railroads to give them up is hard to explain. Under these agreements, many drawn years ago when American ocean shipping was powerless, the railroads threw trade to the foreign lines under a reciprocal arrangement. According to all revelations the foreigners always got more freight than they gave.

With every national interest demanding American shipping as a protection for the country's commercial life, these agreements should be tossed over board. American exports are bound to grow and for sound business reasons, American manufacturers are learning to demand American ships to transport their goods. The railroads should hurry up and fall in line.



## Plan Marine Referendum

The Chamber of Commerce of the United States has named a committee to consider policies it will recommend for adoption for betterment of the American merchant marine. Following its investigation, the committee will recommend a policy to the national chamber. Austin McLanahan, of Alexander Brown & Sons, Baltimore, bankers, is chairman of the committee. Other members are: Robert S. Alter, vice president and export manager, American Tool Works,

Cincinnati; J. L. Ackerson, vice president, Merchant Shipbuilding Corp., Chester, Pa.; Key Compton, president, Chesapeake Steamship Co., Baltimore; R. Stanley Dollar, vice president and general manager, Dollar Steamship Co., San Francisco; Dr. Ralph E. Heilman, dean, school of commerce, Northwestern university, Evanston, Ill.; S. W. King, president, King, Collie & Co., cotton exporters, Dallas; James M. Lykes, member of the firm of Lykes Bros., shipping board operators, Galveston; Ogden T. McClurg, president, A.

C. McClurg Co., Chicago, publishers; Capt. Eugene E. O'Donnell, manager marine department of C. H. Sprague & Son, Boston; H. H. Raymond, president, Clyde Steamship Co. New York, and president of the American Steamship Owners' association; Benjamin Rush, president, Insurance Co. of North America, Philadelphia; J. W. Whitsett, president the Carolina Line, Charleston, S. C.; John R. Gordon, traffic manager, Union Sulphur Co., New York; and Isaac D. Hunt, vice president Ladd & Tilton bank, Portland, Ore.

# Rebuild Big Liner for West Coast

**C**OMpletely rebuilt and with all evidence of her war service removed, the RUTH ALEXANDER, ex-CALLAO, ex-SIERRA CORDOBA, steamed from the harbor of New York in February with a new life before her. This vessel has had an eventful history and now under the ownership of the Admiral line she will become a leader in the Pacific coastwise fleet. She is to enter service between California and Puget sound points, thereby giving the transpacific services of the Admiral line a more luxurious connection with all the ports on the west coast. In the near future, the RUTH ALEXANDER, as this rebuilt ship is henceforth to be known, was to have been joined by the H. F. ALEXANDER. This latter ship would have been the old NORTHERN PACIFIC under a new name. She likewise was purchased from the shipping board for the Pacific coastwise fleet, but was burned and sunk on Feb. 8 enroute to the repair yard.

NORTHERN PACIFIC would have been the largest vessel ever placed in the Pacific coastwise service and likewise one of the fastest. She could make 23 knots. But now the RUTH ALEXANDER will hold that record. Until this time, the Pacific Steamship Co., Seattle, otherwise known as the Admiral line, has been operating seven small steamers in this coastwise run. They are the PRESIDENT, ADMIRAL DEWEY, ADMIRAL SCHLEY, ADMIRAL FARRAGUT, ADMIRAL WATSON, QUEEN and SENATOR. The RUTH ALEXANDER will have San Francisco as a home port. In this coastwise service, Robert Dollar has a substantial interest although the ships will fly the flag of the Admiral line.

The RUTH ALEXANDER was named the CALLAO by the shipping board when the government took possession of her. Prior to that, she was known as the SIERRA CORDOBA and was owned by the North German Lloyd Steamship Co. She was one of the four best equipped passenger vessels of the German company, plying between Bremen and Buenos Aires prior to the war. She was interned in Peru and then she came into the possession of

the United States at the time of seizure, the vessel was fitted with two triple-expansion, reciprocating engines, driving twin screws, power being furnished by four marine-type Scotch boilers at a working pressure of 200 pounds. The boilers were operated with coal as fuel and fitted with a forced draft system.

When this vessel was towed up from Peru she was in a dilapidated and crippled condition due to her long internment and to destruction wrought by the German crew. Practically no work of repairs had been carried on after Germany's declaration of war, leaving the hull in poor condition and badly corroded.

The vessel was towed up to Balboa and there repaired by the government. Her hull and engines were put in working condition and the ship brought on to New York. She was then reconditioned in the navy yard at Brooklyn at the instance of the shipping board, renamed the CALLAO and allocated to the Munson Steamship Co. to be operated in the first-class passenger run between New York and Buenos Aires. In this run, the CALLAO did not make a signal success. Greater speed was demanded to compete with British rivals and the cost of coal was tremendous. Her bunker space being limited, it was impractical to carry sufficient bunker for the round trip, and ultimately the Munson line turned the ship back to the government and oil-fired ships were placed on the run instead.

The Admiral line has purchased the ship from the shipping board and put her through another reconditioning at the yard of the Federal Shipbuilding Co., Kearny, N. J. Radically altered, and converted to an oil burner, she will enter a service that promises profitable returns. This ship has the following measurements:

Length over all, feet, inches—455—9.  
Length between perpendiculars, feet—438.  
Beam over all, feet, inches—55—9.  
Depth molded, feet—38.  
Gross tonnage, 8226.  
Net tonnage, 4938.

On her trials, she was able to make about 16 knots, and it is believed that she will maintain a service speed of 15 knots. In addition to the four original Scotch boilers, the new owner has installed two Babcock & Wilcox boilers of 2900 square feet heating surface each.

The after well deck of the ship has been filled in and that space has been used for additional staterooms. The new owner has also rearranged the passenger quarters on the second deck, thereby providing additional staterooms. All the staterooms on the ship will be first class, the old second class quarters being entirely eliminated. First class quarters will be found on all the decks, and in addition to this the ship will carry about 150 steerage passengers. Under the new arrangement, the RUTH ALEXANDER has 1 suite and 9 rooms on the boat deck, 14 rooms on the promenade deck, 45 rooms on the main deck, and 37 rooms on the second deck, accommodating in all 305 first-class passengers. A special suite of rooms on the bridge deck is for the owners.

The new owner has also extended the dining room on the main deck out to the sides of the ship and extended it aft about 12 feet. This gives table accommodations for 175 guests at one sitting.

The old winches have been removed and the new owners have installed modern cargo handling machinery. Furthermore, four side ports on the second deck have been cut in. The ports are arranged to accommodate the wharves on the Pacific coast so that cargo can be trucked direct in on the second deck. Considerable cargo will also be handled by portable conveyors within the 'tween deck spaces. The RUTH ALEXANDER will carry about 8000 tons of deadweight cargo in addition to her passengers.

The ship is equipped with the pneumator system of draft gage, the Rich system for fire detection and prevention, the Aero fire alarm system, a Sperry gyroscopic compass and wireless set.

# Marine Business Statistics Condensed

## Record of Traffic at Principal American Ports for Past Year

### New York

(Exclusive of Domestic)

Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
January, 1922..	370	1,230,000	396	1,436,614
December, 1921	398	1,372,663	436	1,604,960
November .....	423	1,543,430	415	1,506,071
October .....	413	1,662,564	428	1,644,729
September .....	385	1,304,544	417	1,556,645
August .....	478	1,583,991	390	1,300,897
July .....	394	1,456,304	403	1,423,109
June .....	408	1,368,334	419	1,425,649
May .....	425	1,454,033	366	1,328,643
April .....	410	1,453,056	438	1,509,353
March .....	455	1,574,526	448	1,539,885
February .....	424	1,407,133	374	1,315,556
January .....	455	1,437,725	414	1,433,564

### Philadelphia

(Including Chester, Wilmington and the whole Philadelphia port district)  
(Exclusive of Domestic)

Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
January, 1922..	86	243,546	67	211,468
December, 1921	89	256,660	90	285,894
November .....	89	249,873	87	252,606
October .....	86	239,103	67	204,652
September .....	60	143,434	66	195,558
August .....	84	208,961	61	144,029
July .....	75	178,925	61	148,674
June .....	71	176,968	74	214,524
May .....	110	295,617	70	178,464
April .....	105	255,249	79	209,854
March .....	102	306,512	87	242,606
February .....	104	285,369	75	221,402
January .....	84	250,233	68	217,281

### Norfolk and Newport News

(Exclusive of Domestic)

Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
January, 1922..	22	78,412	53	152,957
December, 1921	24	83,609	64	184,012
November .....	27	84,214	60	171,235
October .....	23	68,037	59	151,449
September .....	25	75,836	51	148,987
August .....	44	134,193	63	173,111
July .....	95	267,846	173	491,104
June .....	140	410,926	238	728,458
May .....	129	398,042	201	601,675
April .....	57	179,852	125	375,044
March .....	47	143,487	88	260,053
February .....	55	160,494	108	327,241
January .....	84	251,499	163	442,657

### San Francisco

(Inclusive of Domestic)

Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
January, 1922..	415	797,676	416	759,577
December, 1921	439	845,793	461	854,895
November .....	432	791,219	445	869,988
October .....	445	780,840	454	787,144
September .....	459	807,276	440	749,911
August .....	464	770,980	457	788,238
July .....	275	699,092	335	676,340
June .....	194	474,948	211	543,629
May .....	271	594,409	164	426,255
April .....	377	607,559	452	703,717
March .....	335	645,435	341	611,575
February .....	305	594,636	297	548,103
January .....	356	585,689	330	566,201

### Baltimore

(Exclusive of Domestic)

Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
January, 1922..	72	225,800	85	274,080
December, 1921	95	281,373	102	312,528
November .....	78	243,934	80	253,943
October .....	73	249,481	78	252,098
September .....	85	259,788	81	260,789
August .....	90	251,499	87	239,482
July .....	116	349,379	123	365,666
June .....	118	359,201	133	413,410
May .....	109	341,731	112	341,381
April .....	114	320,195	119	351,950
March .....	111	320,238	107	316,536
February .....	112	380,602	93	292,881
January .....	131	401,511	112	344,480

### Seattle

Deep sea arrivals Deep sea departures

Month	—No. ships		—Net tonnage	
	No. ships	Net tonnage	No. ships	Net tonnage
December, 1921.	183	528,191	180	517,996
November .....	177	489,119	166	454,118
October .....	163	431,637	157	443,447
September .....	168	434,912	150	387,151
August .....	202	519,467	192	517,253
July .....	158	450,050	159	436,884
June .....	100	331,505	110	341,278
May .....	106	299,777	99	282,583
April .....	143	339,192	163	370,070
March .....	149	372,824	144	369,568
February .....	103	295,144	101	272,136
January .....	131	312,072	134	344,877
December, 1920.	205	323,744	186	302,051

### New Orleans

(Exclusive of domestic)

Month	—No. ships		—Net tonnage	
	No. ships	Net tonnage	No. ships	Net tonnage
Jan., 1922....	225	621,483	217	603,995
Dec., 1921....	208	576,354	271	788,172
November .....	209	533,483	219	600,086
October .....	177	431,976	176	425,186
September .....	191	510,646	226	628,057
August .....	210	478,941	194	452,435
July .....	157	371,379	176	410,749
June .....	172	440,527	195	479,495
May .....	166	410,047	145	354,539
April .....	205	515,287	210	530,283
March .....	201	458,079	202	452,385
February .....	178	436,045	200	453,899
January .....	168	399,903	183	443,303

### Boston

(Exclusive of Domestic)

Month	—No. ships		—Net tonnage	
	No. ships	Net tonnage	No. ships	Net tonnage
January, 1922..	70	185,175	42	108,423
December, 1921	94	239,170	61	134,039
November .....	62	137,585	80	180,940
October .....	99	229,800	67	158,695
September .....	88	197,208	69	144,268
August .....	100	280,687	63	102,032
July .....	98	178,403	81	115,503
June .....	138	211,667	100	119,945
May .....	122	190,148	87	98,008
April .....	101	217,080	71	133,952
March .....	99	306,454	49	113,184
February .....	74	260,502	46	119,847
January .....	72	175,052	50	125,904

### Mobile

(Exclusive of Domestic)

Month	—No. ships		—Net tonnage	
	No. ships	Net tonnage	No. ships	Net tonnage
January, 1922..	71	147,866	64	136,242
December, 1921	85	194,757	87	216,233
November .....	87	104,489	47	86,559
October .....	64	124,089	60	122,949
September .....	55	95,343	46	89,460
August .....	57	108,936	48	83,486
July .....	67	156,801	58	101,850
June .....	53	101,592	51	92,800
May .....	43	67,627	45	71,756
April .....	96	249,996	76	150,776
March .....	79	146,798	56	82,898
February .....	58	105,040	47	89,647
January .....	68	94,273	63	78,109

### Los Angeles

(Exclusive of Domestic)

Month	—No. ships		—Net tonnage	
	No. ships	Net tonnage	No. ships	Net tonnage
November, 1921	94	161,393	81	151,450
October .....	68	124,682	76	123,276
September .....	54	128,611	45	119,275
August .....	50	117,775	40	106,243
July .....	45	144,913	34	101,581
June .....	27	100,411	31	100,580
May .....	35	98,885	26	77,036
April .....	32	119,049	28	71,958
March .....	39	99,455	33	94,380
February .....	74	97,252	60	93,544
January .....	60	111,882	86	64,844
December, 1920.	74	60,333	56	61,211
November .....	69	89,143	79	91,763

### Key West

(Exclusive of Domestic)

Month	—No. ships		—Net tonnage	
	No. ships	Net tonnage	No. ships	Net tonnage
January, 1922..	77	69,850	77	72,321
December, 1921	76	73,276	74	70,169
November .....	70	79,586	67	78,618
October .....	55	66,400	59	67,608
September .....	62	77,229	70	101,948
August .....	65	69,911	59	66,223
July .....	85	89,901	86	87,449
June .....	105	104,326	104	101,494
May .....	100	104,326	104	103,571
April .....	115	117,586	111	114,748
March .....	112	107,736	108	107,083
February .....	124	118,950	120	119,241
January .....	128	146,679	127	142,474

### Portland, Me.

(Exclusive of Domestic)

Month	—No. ships		—Net tonnage	
	No. ships	Net tonnage	No. ships	Net tonnage
January, 1922..	21	64,885	21	67,309
December, 1921	29	92,777	32	99,527
November .....	24	37,712	12	16,794
October .....	13	21,191	8	13,652
September .....	10	15,345	12	26,224
August .....	13	17,192	13	14,265
July .....	13	15,195	11	9,597
June .....	15	15,723	12	12,749
May .....	4	8,324	10	8,885
April .....	17	54,804	19	64,310
March .....	24	75,529	25	80,107
February .....	20	66,422	21	73,581
January .....	34	93,933	28	86,559

### Savannah

(Exclusive of Domestic)

Month	—No. ships		—Net tonnage	
	No. ships	Net tonnage	No. ships	Net tonnage
January, 1922..	6	11,561	9	23,601
December, 1921	4	8,876	14	43,281
November .....	10	19,543	16	44,187
October .....	6	10,417	13	37,447
September .....	3	5,152	19	56,024
August .....	17	33,428	24	55,108
July .....	10	17,469	16	33,712
June .....	11	16,603	13	35,247
May .....	5	9,507	16	36,377
April .....	17	40,418	12	25,543
March .....	13	19,924	14	29,618
February .....	9	14,493	15	32,475
January .....	11	21,591	20	38,179

### Galveston

(Exclusive of Domestic)

Month	—No. ships		—Net tonnage	
	No. ships	Net tonnage	No. ships	Net tonnage
January, 1922..	53	141,172	65	182,442
December, 1921	74	220,988	85	255,851
November .....	77	221,217	70	199,885
October .....	72	219,001	77	227,982
September .....	75	214,391	99	295,869
August .....	104	290,372	126	371,472
July .....	75	204,159	92	270,335
June .....	80	220,872	109	320,655
May .....	83	227,518	95	254,287
April .....	90	264,109	106	308,074
March .....	93	254,755	118	292,682
February .....	89	198,834	102	252,398
January .....	104	252,980	136	339,008



# Marine Business Statistics Condensed

## Record of Traffic at Principal American Ports for Past Year

Houston				
Month	(Exclusive of Domestic)		Clearances—	
	Entrances—	Net	No.	Net
	No. ships	tonnage	No. ships	tonnage
January, 1922....	32	53,779	31	92,069
December, 1921....	22	42,359	21	27,001
November .....	23	30,705	27	46,519
October .....	17	36,682	16	32,223
September .....	24	74,633	28	26,929
August .....	24	15,558	21	58,492
July .....	28	39,566	28	54,057
June .....	27	33,405	19	33,187
May .....	19	10,705	20	38,180
April .....	25	44,706	26	43,695
March .....	34	43,102	29	41,095
February .....	13	13,643	15	23,094
January .....	17	22,373	14	19,057

Port Arthur, Tex.				
Month	(Exclusive of Domestic)		Clearances—	
	Entrances—	Net	No.	Net
	No. ships	tonnage	No. ships	tonnage
January, 1922....	82	261,439	77	261,604
December, 1921....	106	359,401	104	339,605
November .....	92	286,179	89	263,940
October .....	93	256,932	89	263,993
September .....	87	224,944	92	254,039
August .....	74	193,578	70	167,193
July .....	70	168,438	59	142,181
June .....	76	212,571	85	214,705
May .....	71	193,427	56	141,542
April .....	78	198,616	84	203,895
March .....	108	274,578	99	243,638
February .....	93	249,084	103	267,770
January .....	90	239,240	82	207,079

Providence				
Month	(Exclusive of Domestic)		Clearances—	
	Entrances—	Net	No.	Net
	No. ships	tonnage	No. ships	tonnage
January, 1922....	11	46,093	12	50,449
December, 1921....	8	26,053	16	50,847
November .....	12	50,551	16	59,677
October .....	13	46,530	10	44,661
September .....	12	43,665	19	65,515
August .....	6	19,722	3	13,095
July .....	14	45,133	4	13,674
June .....	7	21,703	16	43,556
May .....	12	34,612	9	24,997
April .....	13	42,378	9	37,802
March .....	8	30,539	9	39,801
February .....	8	29,359	9	35,992
January .....	12	47,098	13	50,598

## More Swedish Ships Use Panama Canal

The number of Swedish vessels using the Panama canal each fiscal year ending June 30 since it was first opened to navigation is shown below:

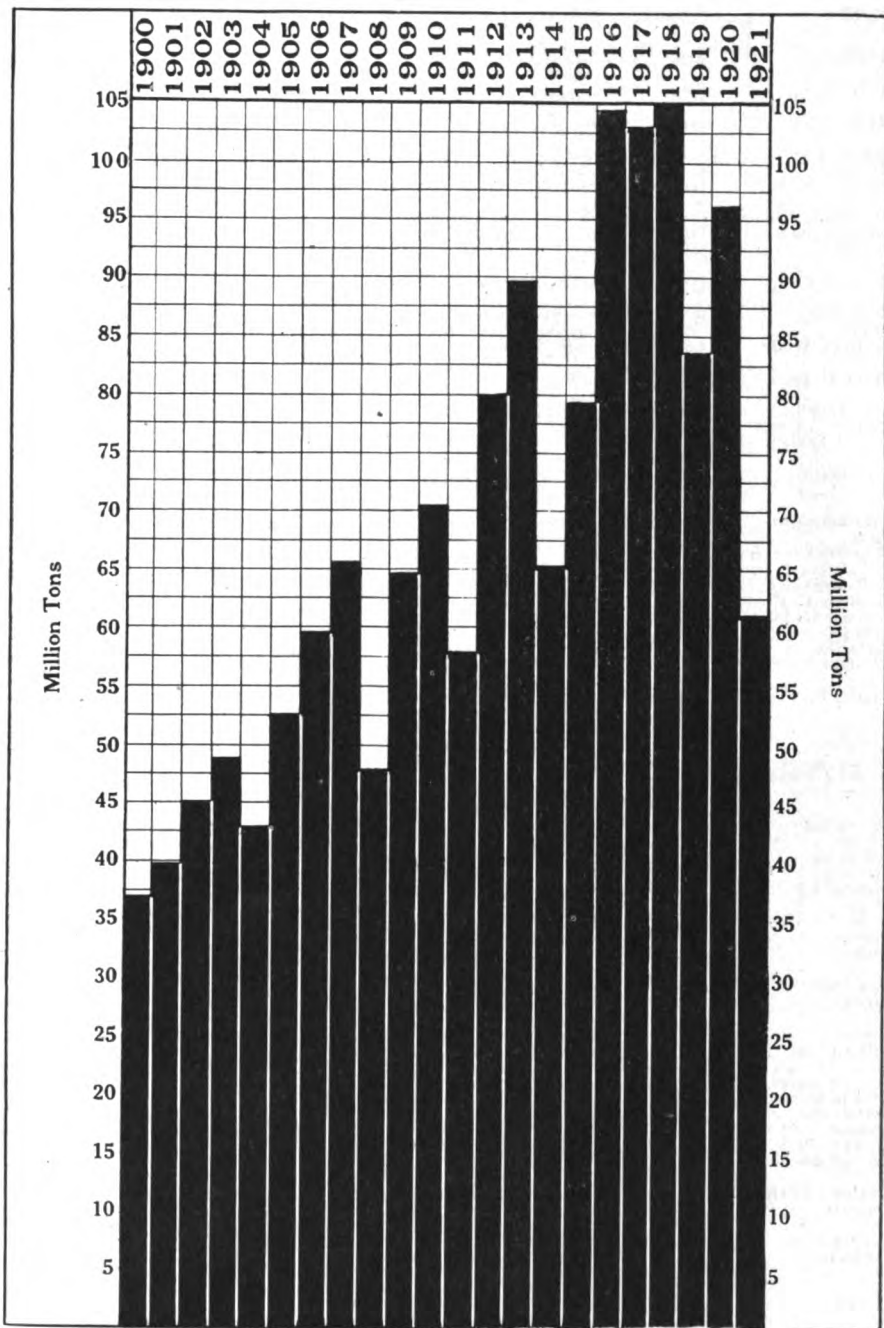
Fiscal year	Atlantic to Pacific	Pacific to Atlantic	Total
1915.....	8	10	18
1916.....	5	8	13
1917.....	7	11	18
1918.....	12	14	26
1919.....	12	17	29
1920.....	10	9	19
1921.....	15	10	25
Totals .....	69	79	148

The number of ships according to the *Canal Record* was greatest in the two last years of the war, but the difference was not so marked as in the case of Norwegian and Danish shipping. The Swedish traffic through the canal in the fiscal year 1921 was distributed as follows:

	Vessels	Cargo tons
Europe to west coast South America	6	16,903
West coast South America to Europe	1	5,700
Europe to west coast North America	2	5,127
West coast North America to Europe	9	61,952
East coast United States to Australasia	6	39,237
Europe to Australasia.....	1	.....
	25	128,919

Of the six vessels sailing to Australasia from the United States three carried coal cargoes from Norfolk and three sulphur cargoes from Gulf ports. All of these vessels belonged to the Swedish Transatlantic Steamship Co. All of the vessels in the trade between Europe and the west coast of the two Americas, with two exceptions, belonged to the Johnson line (*Rederikiebolaget Nordstjernan*).

The Pacific Mail Steamship Co. resumed its San Francisco-New York service, after 30 years, with the arrival in New York, Feb. 4, of the steamer *VENEZUELA*, manned by native sons of California and under command of Capt. John G. Moreno, who has been with the Pacific Mail since 1889. The line will maintain four ships in the service.



RECORD OF GREAT LAKES TRAFFIC FOR THE PAST 22 YEARS  
Graphic picture of bulk freight movement showing the steady increase in volume. This fact is emphasized by the drop of only 37 per cent in freight handled in 1921 compared with 1920, while the iron and steel trade, which supplies the bulk of the lake traffic, in 1921 operated 70 to 80 per cent below capacity. The bulk freight commodities included in the chart are iron ore, bituminous and anthracite coal, grain and stone

# Late Flashes On Marine Disasters

Brief Summaries of Recent Maritime Casualties—  
A Record of Collisions, Wrecks, Fires and Losses

NAME OF VESSEL	DATE	NATURE	PLACE	DAMAGE RESULTING	NAME OF VESSEL	DATE	NATURE	PLACE	DAMAGE RESULTING
Andijk	Jan. 9	Ashore	Flushing	Not stated	F. D. Asche	Jan. 19	Disabled	Newport News	Not stated
Atalaya	Jan. 8	Fire	At sea	Not stated	Frank M. Deering	Jan. 30	Lost anchor	Chesapeake Bay	Not stated
A. C. Bedford	Jan. 11	Disabled	Staten Island	Not stated	Felix	Feb. 3	Ashore	Leixoes	Not stated
Annette Rolph	Jan. 9	Grounded	Near Seattle	Undamaged	Fred Baxter	Feb. 5	Disabled	Blunts Reef	Lost prop.
Agnes P. Duff	Jan. 19	Not stated	Renews, NF	Total loss	Grace	Jan. 11	Hurricane	SE of Barnegat	Lost
Arcturus	Jan. 22	Gale	At sea	Lost life-boat	General Rawlinson	Jan. 17	Grounded	Leixoes	To cargo
Asquith	Jan. 22	Gale	At sea	Sinking	Golden State	Jan. 20	Collision	Pensacola	Heavy
Arethusa	Jan. 24	Disabled	Cape Fear	Tail shaft broke	Giovanna Florida	Jan. 24	Fire	Portland	Slight
Aus	Jan. 26	Grounded	Alcatraz Island	Slight	G. J. Cherry	Jan. 25	Disabled	Savannah	Leaking
Bertha F. Paul	Feb. 3	Not stated	New York	Lost deck-load	G F C T No. 8	Jan. 18	Lost	Gulf of Mexico	Not stated
Australind	Feb. 5	Heavy weather	At sea	Rails & houses gone	Gaspe	Feb. 3	Not stated	At sea	Abandoned
Avondale	Feb. 7	Broke moorings	Magazine Point	Considerable	Garfield	Feb. 6	Ashore	Colombian Coast	Undamaged
A. H. Olwine	Feb. 8	Collision	Norfolk	Undamaged	Havana	Jan. 11	Not stated	Toms River, NJ	Sank
British Rose	Jan. 10	Fire	London	To stoke-hold	Helen	Jan. 11	Hurricane	SE of Barnegat	Lost
Blackheath	Jan. 17	Ashore	Gibraltar	Not stated	Half Moon	Jan. 14	Disabled	Malta	Leaky fuel tank
Bertha A.	Jan. 18	Collision	SE of Highlands	Bow stove in	H. K. Waage	Jan. 17	Leaking	Stornoway	Jettis. cargo
Barbara W.	Jan. 16	Not stated	Beaver Harbor	Lost deck-load	Horace A. Allyn	Jan. 11	Gale	Barnegat	Water in hold
Blanche C. Pendleton	Jan. 21	Collision	Bodies Island, NC	Waterlogged	Honolulu Maru	Jan. 20	Disabled	New York	Eng. trouble
Buckeye State	Jan. 24	Fire	San Francisco	Slight	Helen B. Sterling	Jan. 24	Leaking	At sea	Abandoned
Bryssel	Jan. 25	Ashore	Governor Island	Steerer broke	Hubert	Jan. 28	Disabled	Santos	Steerer damaged
Brunswick	Jan. 25	Disabled	Near San Francisco	Tail shaft broke	Hog Island	Jan. 28	Disabled	Gibraltar	Shafting dis.
Bradlyde	Jan. 25	Disabled	Honolulu	Eng. trouble	Half Moon	Jan. 30	Collision	Near Norfolk	Heavy
Bronx	Feb. 2	Collision	New York	Unknown	Herman Frasch	Feb. 1	Disabled	Gravesend Bay	Stripped gear
Bessie A. White	Feb. 5	Ashore	W of Smiths Point, I. I.	Total loss	Hallgerd	Jan. 28	Gales	At sea	To deck & bulkhead
Bessie Dollar	Feb. 10	Storm	Off Washington	Heavy	Hagan	Feb. 7	Broke moorings	Magazine Point	Considerable
Conemaugh	Jan. 3	Collision	Tampico	Not stated	Hoklar	Feb. 7	Broke moorings	Magazine Point	Considerable
Charlot	Jan. 10	Disabled	At sea	Eng disabled	Harrison T. Beacham	Feb. 6	Hurricane	Florida Coast	Lost sails
City of Tokio	Jan. 10	Disabled	Honolulu	Not stated	Herbert May	Feb. 9	Grounded	Marquesas	Total loss
Crook	Jan. 10	Disabled	At sea	Leaking	Isabel	Jan. 9	Stranded	Sagua Bay	Undamaged
Clarksburg	Dec. 31	Heavy weather	At sea	Smashed steerer	Isis	Jan. 14	Collision	Rio Janiero	Sank
Constantinople	Jan. 12	Collision	Erie basin	Undamaged	I. C. White	Jan. 21	Collision	Bodies Island, NC	Not stated
Clara	Jan. 11	Hurricane	SE of Barnegat	Lost	Igotz Mendi	Feb. 6	Disabled	Fayal	Steam pipe broke
Canadian Observer	Jan. 13	Ashore	Discovery Passage	Undamaged	Imperia	Feb. 8	Gale	Marseilles	Slight
C. C. Mengel, Jr.	Jan. 7	Ashore	Morant Keys	Total loss	Ida M. Keith	Jan. 17	Fire	Sandusky	Total loss
C. P. Raymond	Jan. 17	Not stated	Hoboken	Sank	Jean McKay	Dec. 25	Collision	Yucatan Channel	Heavy
Courtney C. Houck	Jan. 22	Gale	Thatchers Island	Sails split	James M. W. Hall	Jan. 13	Waterlogged	At sea	Not stated
Commercial Pilot	Jan. 26	Grounded	Cape Maisi	Total loss	Josephine	Jan. 14	Disabled	Reedy Island	Leaking
Carlton	Jan. 26	Collision	Cape Henry	Slight	Joseph S. Zeman	Feb. 3	Grounded	Penobscot Bay	Not stated
Catherine	Jan. 25	Grounded	Ship John Shoals	Undamaged	J. C. Donnell	Feb. 10	Grounded	Reedy Island	Not stated
Cranford	Jan. 29	Disabled	Fayal	Machy. damaged	Keybell	Dec. 18	Gale	Kingston	Heavy
Charles R. Wiebe	Jan. 30	Disabled	At sea	Pump trouble	Kobenhaven	Jan. 12	Disabled	San Francisco	Prop. dam.
Chaumont	Jan. 26	Disabled	Honolulu	Not stated	Kiowa	Feb. 1	Not stated	Charleston	Lost deck load
Caltraps	Feb. 1	Disabled	St. Michaels	Eng. trouble	Lord Ormonde	Jan. 22	Not stated	E of Halifax	Sank
City of Tokio	Feb. 6	Disabled	At sea	Turbines dis.	Lloyd	Jan. 25	Grounded	Shovelful Shoals	Undamaged
City of Flint	Feb. 6	Heavy weather	At sea	To cargo	L. A. Dunton	Jan. 22	Gale, grounded	Yarmouth	Undamaged
City of Columbus	Feb. 7	Disabled	New York	Eng. trouble	Luther Little	Feb. 9	Gale	At sea	Lost jibboom
Coylet	Feb. 8	Fire	SW of Sand Key	Not stated	Monongahela	Jan. 3	Collision	Tampico	Not stated
C & O No. 1	Feb. 7	Collision	Norfolk	Heavy	Messenger of Peace	Jan. 8	Disabled	Wilmington, NC	Leaking
Cragness	Feb. 5	Disabled	Halifax	Steerer dis.	Marie De Ronde	Jan. 13	Collision	Staten Island	Not stated
Craster Hall	Feb. 10	Disabled	Astoria	Steam pipe broke	Mark H. Gray	Jan. 12	Wrecked	Lark Harbor	Total loss
Depere	Jan. 14	Ashore	Callao	Jettis. cargo	Mabel A. Frye	Jan. 13	Disabled	Cape Henry	Windlass broke
Digby	Jan. 21	Disabled	St. Johns, NF	To prop. shaft	Manalbro	Jan. 15	Collision	Vineyard Haven	Slight
Daneholm	Jan. 26	Collision	Cape Henry	Slight	Matinicock	Jan. 16	Disabled	At sea	Eng. trouble
Dix	Jan. 26	Grounded	Alcatraz Island	Hole in forepeak	Mod	Jan. 21	Gale, disabled	At sea	Sank
Donax	Feb. 7	Ashore	Malmo	Not stated	Modica	Jan. 24	Disabled	Horta	Eng. trouble
Dilwyn	Feb. 7	Broke moorings	Magazine Point	Considerable	Mildred Adams	Jan. 22	Storm	At sea	Mainboom lost
Enid E. Legge	Jan. 6	Disabled	Channel, NF	Sails lost	Mississippi	Jan. 26	Gales	Banks of Newfoundland	Bow rail broke
Eastern Sun	Jan. 20	Disabled	Portsmouth, Va.	Eng. trouble	Malahat	Jan. 31	Disabled	Auckland	Rudder broke
Eleanor	Jan. 21	Ashore	Portsmouth	Undamaged	Mary Hanlon	Jan. 31	Disabled	San Francisco	Eng. trouble
Eileen Lake	Jan. 19	Not stated	Pierre Banks	Sank	Munwood	Jan. 31	Disabled	Delaware Breakwater	Bulkhead dam.
Eastern Breeze	Jan. 21	Disabled	Halifax	Steerer trouble	Mount Carroll	Jan. 28	Disabled	New York	Steerer trouble
Eleanor F. Bartram	Jan. 25	Disabled	Nassau	Lost sails	Mary Bradford Peirce	Jan. 23	Gale	At sea	To rigging
Empress	Jan. 29	Collision	Halifax, NS	To bow plates	Manning	Jan. 30	Disabled	Norfolk	Radio disabled
Eastern Dawn	Feb. 1	Sea cock dis.	Baltimore	Sank at bow	Matinicock	Feb. 3	Collision	Houston Ship channel	Not stated
Eskbridge	Jan. 31	Severe weather	At sea	Deck damaged	Mount Clay	Feb. 6	Disabled	Hamburg	Rudder damaged
El Valle	Feb. 10	Collision	New York	Not stated	Miskianza	Feb. 7	Broke moorings	Magazine Point	Considerable
Florence Harvey	Dec. 24	Grounded	Mobile	Heavy	Mary A. Kenny	Feb. 9	Fire	Brooklyn	To cargo
Freeman	Jan. 15	Collision	Vineyard Haven	To headgear	Norheimsund	Jan. 13	Heavy weather	Harbor Grace	Slight
Fenchurch	Jan. 20	Disabled	New York	Rudder trouble	Nellie Eaton	Jan. 9	Ashore	Mulholland Point	Not stated
					Norheimsund	Feb. 6	Disabled	Gibraltar	Eng. & boil. dis.



# Late Flashes On Marine Disasters

Brief Summaries of Recent Maritime Casualties—  
A Record of Collisions, Wrecks, Fires and Losses

NAME OF VESSEL	DATE	NATURE	PLACE	DAMAGE RESULTING	NAME OF VESSEL	DATE	NATURE	PLACE	DAMAGE RESULTING
Northern Pacific	Feb. 8	Fire	Five Fathom Bank	Total loss	Sioux	Jan. 27	Grounded	North River	Not stated
Norman B. Strong	Feb. 8	Sinking condition	At sea	Abandoned	Sarah Eaton	Jan. 8	Shore	Campobello, NB	Total loss
Newman	Jan. 12	Hit break-water	Conneaut	Slight	Senator	Feb. 3	Leak	Chance Harbor	Slight
Oakley C. Curtis	Jan. 10	Ashore	Hampton Roads	Undamaged	Southwestern Miller	Feb. 3	Collision	River Thames	Unknown
Orcus	Jan. 12	Disabled	Lima	Pumps damaged	S. G. Wilder	Feb. 7	Disabled	E. of St. Johns River	Distasted
Ormond	Jan. 11	Gale	Barnegat	Heavy	Songelv	Feb. 9	Disabled	St. Michaels	Rudder gone
Oconee	Jan. 24	Ashore	Point Maysi	Not dangerous	Stockton	Feb. 10	Collision	San Pedro	Heavy
Optimist	Jan. 30	Waterlogged	Cape Race	Abandoned	Tasmania	Dec. 25	Collision	Yucatan Channel	Not stated
Owen J. McWilliams	Feb. 4	Disabled	Near New York	Dis. steam pump	Thomas P. Beal	Jan. 13	Fire	Seattle	Heavy
Ocmulgee	Feb. 5	Not stated	At sea	Lost deck-load	Tuckahoe	Jan. 24	Disabled	Portland, Me.	Not stated
Oscar E. Edwards	Feb. 7	Gale	At sea	Deck damaged	Thyra	Jan. 31	Disabled	At sea	Rudder gone
Providencia	Jan. 8	Disabled	San Francisco	Eng. trouble	Tuckahoe	Jan. 29	Stranded	Indian River	Not stated
Princeton	Jan. 21	Fire	Bayonne, N. J.	Slight	Thistlemore	Feb. 7	Grounded	Cape Cod	To bottom
Port Angeles	Jan. 25	Collision	San Pedro, Cal.	Heavy, leaking	Tancred	Feb. 10	Grounded	N of Hillsboro	Not stated
Princess Matoika	Jan. 27	Storm	Near New York	Steerer dis.	Union Jack	Jan. 12	Disabled	Bay of Bulls	Sails lost
Pannonia	Jan. 25	Disabled	At sea	Lost rudder	U. S. Eagle No. 34	Feb. 10	Fog	San Pedro	Slight
Paipoonge	Feb. 2	Disabled	Norfolk	Leaking	Venusia	Jan. 22	Gale	At sea	Slight
Palma	Feb. 9	Fire	At sea	Total loss	Vigan	Jan. 24	Beached	North Haitian Isles	Not stated
Queens	Feb. 2	Collision	New York	Not stated	Vellavia	Jan. 28	Disabled	At sea	Prop. shaft dis.
Robert L. Ireland	Dec. 18	Gale	Buffalo	Heavy	Varuna	Feb. 8	Disabled	Alligator Reef	Headgear gone
Ruby W.	Dec. 7	Abandoned	At sea	Not stated	W. A. Marshall	Jan. 8	Sprang leak	NE of Boston	Lightship
Roy Somers	Jan. 10	Disabled	Honolulu	Sails lost	W. H. Smith	Jan. 9	Not stated	Nassau	Sank
Romsdalshorn	Jan. 12	Disabled	Glasgow	Leaking	Western Ocean	Jan. 11	Disabled	SE of Cape Look-out	Total loss
Robert Fulton	Jan. 14	Disabled	Off Hampton Roads	Not stated	Williams No. 23	Jan. 13	Not stated	Coney Island Creek	Eng. trouble
Rose M.	Jan. 16	Ashore	Azores	Waterlogged	William Russell	Jan. 13	Ashore	Chesapeake Bay	Sank
Rawlinson	Jan. 24	Not stated	Oporto	Sank	West Nilus	Jan. 14	Disabled	Falmouth	Not stated
Regulus	Jan. 30	Disabled	Falmouth	Steerer dis.	West Chopaka	Jan. 21	Collision	At sea	Leaking
Robert & Arthur	Jan. 30	Gale	Yarmouth, NS	Badly damaged	Westward Ho	Jan. 22	Collision	Brooklyn	Not stated
R. W. McDonald	Jan. 30	Storm	At sea	aged	Wilhelmina	Jan. 18	Disabled	San Francisco	Engine dis.
Red Hook	Feb. 3	Collision	Houston Ship channel	Sinking	Willie A. Higgins	Jan. 25	Collision	San Pedro, Cal.	Heavy
Rose E. Murphy	Feb. 10	Leaking	Cape Haitien	Slight	West Caddoa	Jan. 25	Disabled	Savannah	Steerer broke
Sagadahoc	Jan. 10	Prop. shaft damaged	Alexandria	Jettis, cargo	West Hardaway	Jan. 28	Disabled	St. Michael's	Prop. blade lost
Skoghoim	Jan. 31	Ashore	Dohoy Sound	Rudder gone	W. H. Lee	Jan. 30	Fire	Halifax	Sank
					Western Maid	Feb. 4	Disabled	At sea	Steerer gone
					West Chatala	Feb. 9	Disabled	Falmouth	Steerer damaged
					Whitehaven	Feb. 10	Collision	New York	Sank
					Wasagya	Feb. 10	Disabled	Hampton Roads	Not stated.

## River Traffic Sizable

Traffic on the rivers in the Pittsburgh district reached a sizable total in January when the combined tonnage was 1,367,820. According to classification of commodities for each of the rivers, the business follows:

Commodity	Allegheny	Monongahela	Ohio
Coal	6,620	1,204,436	42,750
Coke	.....	.....	.....
Gasoline	1,200	660	300
Gravel	11,900	27,060	4,565
Packet cargo	.....	.....	3,356
Sand	6,160	32,445	7,175
Unclassified	130	21,039	24
Total	26,010	1,285,640	58,170

## Few Spanish Ships Run Through Panama Canal

No vessel under the Spanish flag passed through the Panama canal in 1915 and 1916. The number of vessels recorded in 1917 and subsequent years is shown in the table:

Fiscal year.	Atlantic to Pacific	Pacific to Atlantic	Total
1917	10	10	20
1918	5	7	12
1919	2	3	5
1920	20	21	41
1921	22	22	44
Totals	59	63	122

There is no Spanish line with reg-

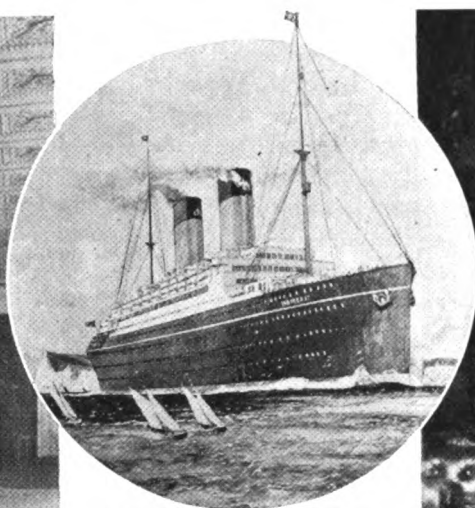
ular sailings operating through the canal, says the *Canal Record*. Of the 22 vessels southbound during the fiscal year 1921, one was a battleship and the remaining 21 tramp steamers from European and North American ports

to Chile. Seven of them carried coal cargoes (32,156 tons) from the United States, and 14 were in ballast. The 22 vessels northbound all carried nitrate (110,920 tons) from Chile to the United States or Europe.

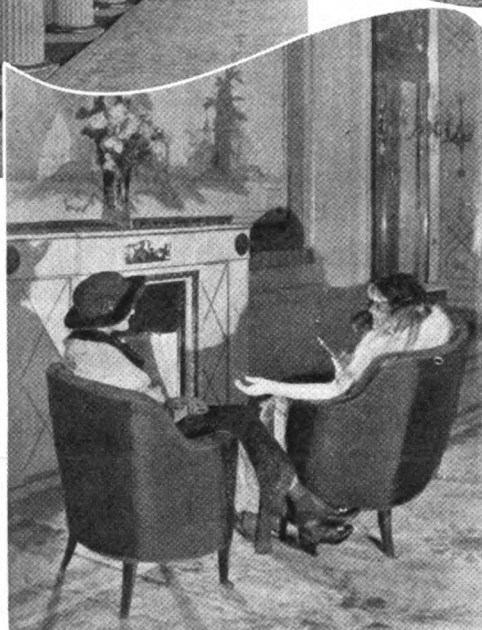
## 1921 Traffic Record of District of Massachusetts

Vessels Entered Foreign									
Nationality	Sail cargo		Sail ballast		Steam cargo		Steam ballast		Totals
	No.	Net tons	No.	Net tons	No.	Net tons	No.	Net tons	No. Net tons
American	59	11,816	10	4742	471	1,341,127	24	73,214	564 1,430,899
British	148	22,531	5	877	556	1,158,919	15	34,213	724 1,216,540
Danish	.....	.....	.....	.....	27	56,200	1	1,202	28 57,402
Dutch	.....	.....	.....	.....	16	77,079	1	1,533	17 78,612
French	.....	.....	.....	.....	3	9,901	.....	.....	3 9,901
German	.....	.....	.....	.....	1	2,444	.....	.....	1 2,444
Italian	.....	.....	.....	.....	5	21,479	.....	.....	5 21,479
Japanese	.....	.....	.....	.....	1	4,331	1	3,850	2 8,181
Norwegian	.....	.....	.....	.....	54	98,765	8	17,716	62 116,481
Portuguese	1	99	1	115	5	16,863	.....	.....	7 17,077
Spanish	.....	.....	.....	.....	2	3,046	.....	.....	2 3,046
Swedish	.....	.....	.....	.....	19	37,531	.....	.....	19 37,531
Total	208	34,446	16	5734	1160	2,827,685	50	131,728	1434 2,999,593
Vessels Cleared Foreign									
Nationality	Sail cargo		Sail ballast		Steam cargo		Steam ballast		Totals
	No.	Net tons	No.	Net tons	No.	Net tons	No.	Net tons	No. Net tons
American	29	7,627	24	8,449	99	291,128	207	611,998	359 919,202
British	64	10,127	68	9,599	351	696,188	77	45,260	560 761,174
Cuban	.....	.....	.....	.....	.....	.....	1	150	1 150
Danish	.....	.....	.....	.....	3	1,911	2	2,498	5 4,409
Dutch	.....	.....	.....	.....	3	6,457	.....	.....	3 6,457
French	.....	.....	.....	.....	3	16,714	.....	.....	3 16,714
Italian	.....	.....	.....	.....	3	14,679	.....	.....	3 14,679
Norwegian	.....	.....	.....	.....	11	15,776	18	48,173	29 63,949
Panamanian	.....	.....	.....	.....	1	1,549	.....	.....	1 1,549
Portuguese	3	274	.....	.....	6	17,820	.....	.....	9 18,094
Spanish	.....	.....	.....	.....	1	2,153	.....	.....	1 2,153
Swedish	.....	.....	.....	.....	2	2,109	2	2,109	4 2,109
Turkish	.....	.....	.....	.....	1	2,993	.....	.....	1 2,993
Total	96	18,028	92	18,048	482	1,067,368	307	710,188	977 1,813,632

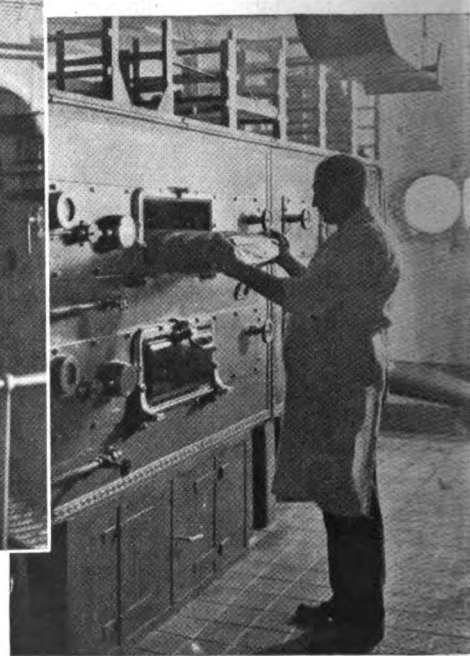
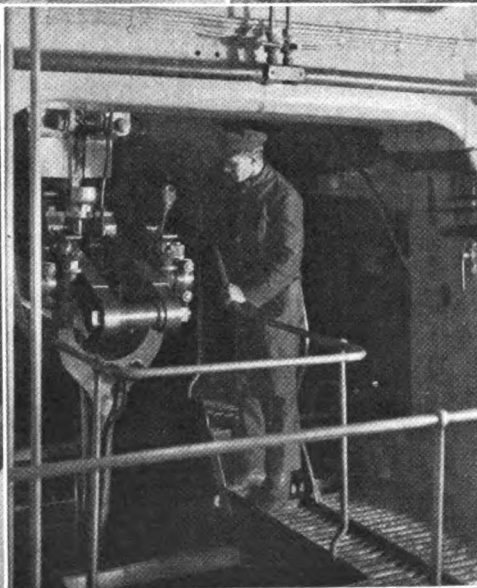
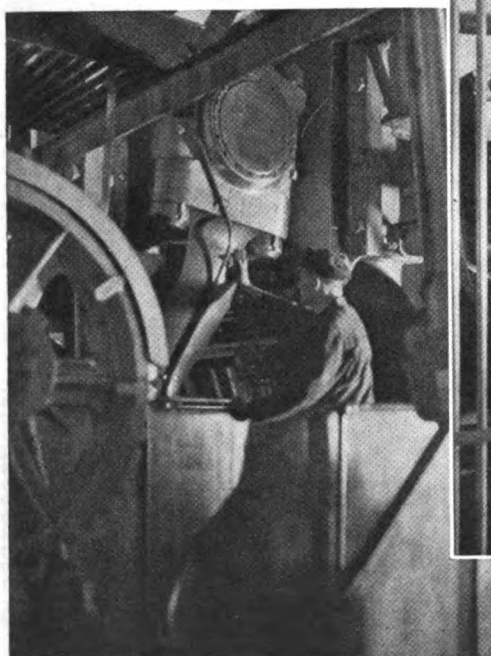
# Photographs from Far and Near



This unusual group of photographs was snapped aboard the new White Star liner Homeric. The views are among the first to reach this country showing this entrant into the North Atlantic service.



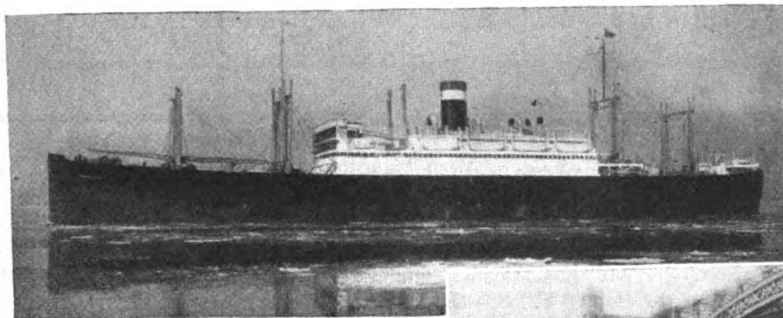
The Homeric, built by the Germans and turned over under the peace treaty, is the world's largest twin screw vessel and the sixth largest in size. She is 777 feet long, will make 20 knots and carry 2653 passengers.



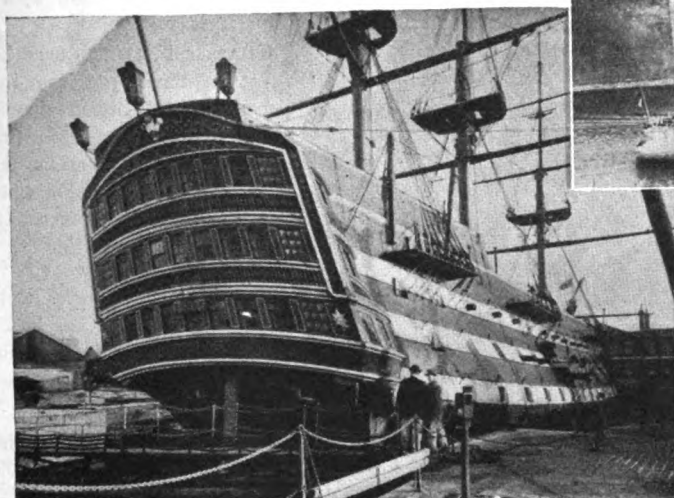
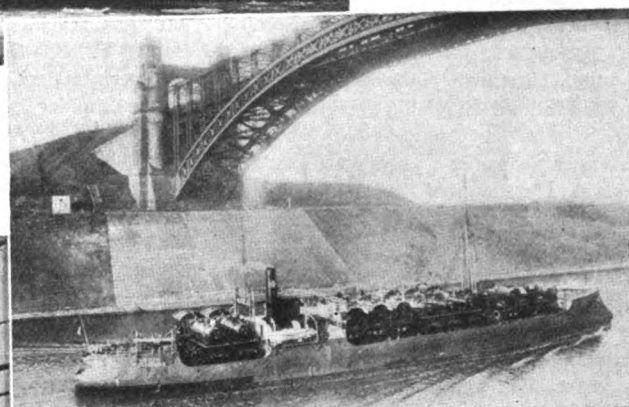


# Latest Marine News in Pictures

The last of nine 535-foot, 21,200-ton passenger liners built by the New York Shipbuilding Corp. for the government. She is the Peninsula State and will operate in the North Atlantic route.



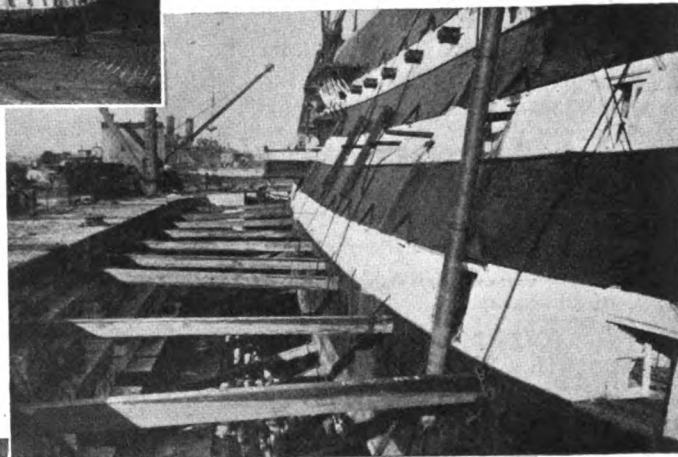
Former German cruiser Odin starts a new career. She is shown in the Kiel canal transporting a full cargo of locomotives which were built by Krupps for export.



These four views show the famous English frigate Victory in dry dock at Portsmouth, England. She was the flagship of Lord Nelson at the battle of Trafalgar. She has been preserved as a historic relic and as a training ship.



The old sea-fighter is not being scrapped by Washington conferences. Instead she is making her first trip to a dry dock to be converted into a marine museum.



# Marine News in a Personal Way

Intimate Gossip About What Leaders in the  
Maritime World Are Doing

CAPTAIN F. L. IVERSON has been appointed to the command of the United American lines' new passenger ship *RELiance*. The *RELiance*, together with her sistership the *RESOLUTE*, was recently purchased by the Harriman interests from the Royal Holland Lloyd line. Captain Iverson is now in command of the lines' passenger steamer *MOUNT CLINTON*. Captain Iverson took command of his first ship in 1892, this being a foreign-going sailing vessel operating out of New York. After seven years on various sailing craft he became associated with the American line and served with its steamers for seven years. For about 10 years he commanded the pleasure yachts of several well-known Americans, including Senator Aldrich and Rodman Wanamaker. During the war Captain Iverson was in command of the transport *LIBERATOR*. He joined the staff of the United American lines in 1921.

\* \* \*

A. P. HAMMOND has been appointed Pacific coast manager for the Atlantic, Gulf & Pacific Steamship Co., from which position J. T. WADE resigned a few weeks ago, to devote his attention to private business.

\* \* \*

J. P. SUTHERLAND has been named eastern passenger agent for the Pacific Mail Steamship Co., to handle the newly established San Francisco-New York service of this company.

\* \* \*

THOMAS H. WALSH, Auburndale, Mass., has been appointed to the position of traffic manager of the shipping board at Boston. Mr. Walsh has succeeded E. S. LEAVITT, who resigned to become general agent of the Morgan line and Southern Pacific Co. at Boston.

\* \* \*

CAPT. JOSEPH H. YORK, South Portland, Me., will soon take command of the 6-mast schooner *EDWARD J. LAWRENCE*. Captain York for several years sailed the Boston schooner *GEORGE W. WELLS*, the first 6-mast schooner ever constructed.

\* \* \*

J. J. TYNAN, vice president and Pacific coast manager of the Bethlehem Shipbuilding Corp., left for New York early in February for conferences with

Charles M. Schwab regarding the manufacture of \$15,000,000 worth of large diesel engines for American and foreign ships, at the Alameda, San Francisco and Los Angeles plants of the corporation. F. E. NEITZEL, San Francisco, is superintendent of construction of these engines, under Mr. Tynan.

\* \* \*

WILLIAM H. AVERY, San Francisco, formerly general manager of the Toyo Kisen Kaisha, and at present adviser



CAPT. F. L. IVERSON

to S. ASANE, president of that company, has been decorated with the insignia of the Fourth Order of the Rising Sun, by the Japanese government, through S. YADA, consul general at San Francisco.

\* \* \*

NATHAN A. SMYTH has been named general counsel of the Emergency Fleet corporation. Mr. Smyth has been assistant general counsel of the corporation.

\* \* \*

C. H. MARSHALL has been made local manager at Jacksonville, Fla., of the Tampa Inter-Ocean Steamship Co., operating the Shore line.

\* \* \*

H. C. CANTELOW, assistant general manager of the Pacific Steamship Co., with headquarters at Seattle, has resigned to become general manager for the Pacific

coast of the Luckenbach Steamship Co. For many years Mr. Cantelow has been associated with Pacific shipping services having been in the traffic department of the Pacific Coast Steamship Co. and later with the Admiral line. His future headquarters will be in San Francisco.

\* \* \*

GEORGE M. SKINNER has been appointed manager for maintenance and repairs of the San Francisco office of the United States shipping board.

\* \* \*

CHARLES F. DUISENBERG has been made agent at San Francisco for the North German Lloyd Steamship Co. which has not been represented in that port since 1916. ROBERT CHAPPELLE was in charge at that time. Mr. Duisenberg's father, CHARLES A. DUISENBERG, for 35 years was agent for the line.

\* \* \*

V. O. LAWRENCE, president of the Lawrence Warehouse Co., has been elected president of the Warehousemen's association of the port of San Francisco. Other officers elected were W. E. Jones, of the Associated Terminals Co., vice president, and L. A. Bailey, secretary.

\* \* \*

A. T. NOTT has been appointed superintendent of terminals at San Francisco for the Los Angeles Steamship Co., in place of G. W. GREEN, who resigned to go with the shipping board. Mr. Nott was formerly dock agent for this company.

\* \* \*

CAPT. FARRIS J. PIERCE, of the Pacific Mail steamer *SAN JUAN*, has been appointed a bar pilot at San Francisco, to fill the vacancy left by the death of CAPT. JOHN J. SHEA recently. The new bar pilot is only 34 years old, and is one of the youngest men in the service.

\* \* \*

E. E. MACNARY, deputy controller of the United States lines, has been appointed general passenger agent and J. M. KENNEDY, who has been passenger agent has been transferred to London as European passenger agent. FRANK J. SKAIA has succeeded H. Clausenius & Co. as general western passenger agent at Chicago. R. I. DUNGAN, who was traffic director of the Baltic Steamship Co., has been appointed assistant general passenger agent of the United States lines, succeeding EDWARD WORTHMANN who resigned to again become associated with the North German Lloyd line.



# Activities in the Marine Field

Latest News from Ships and Shipyards

## Make Plans for 1922 Lake Season

BY MYERS L. FEISER

**C**HARTERING of vessels for the 1922 season on the Great Lakes, the placing of ships to hold grain in storage until after the season opens and the early loading of some cargoes in preparation for hauling up the lakes, mark the midwinter operations of Great Lakes carriers and shippers. In the meanwhile bids are being sought on some proposed new tonnage and yards are making efforts to have some of the contracts placed.

Charles B. Percy has been elected treasurer of the White Star line, relieving John Priddeon Jr., vice president and treasurer, who continues as treasurer. Mr. Percy has been assistant treasurer and his affiliation with the company dates back 30 years.

Contract has been signed by D. Dick Jr., president of the National Sand & Material Co., Ltd., with the Collingwood Shipbuilding Co., for the construction of a 2200-cubic yard sand and gravel carrier. She will be 258 feet long by 43-foot beam.

No shipwrecks causing loss of lives, fewer men in service due to the backward shipping season and increased effective work by the safety committees reduced the number of death benefits paid last year by the Lake Carriers association.

Capt. J. F. Symons has been appointed harbor master at Montreal succeeding Captain Bourassa who retires on pension. F. W. Cowie has been made consulting engineer of the port succeeding the late Sir John Kennedy and J. W. Harvie has been made chief engineer succeeding Mr. Cowie. Mr. Harvie's place as assistant chief engineer has been taken by Paul Leclaire, formerly engineer in charge of building, bridges and water supply system.

Survey of the steamer MERTON E. FARR, one of the fleet damaged in the storm at Buffalo, Dec. 18, disclosed 78 plates, mostly topside, were damaged. She was the worst injured of the fleet. The SAMUEL MATHER was the next worst crippled having 67 plates damaged. The ROBERT L. IRELAND had 50 plates damaged.

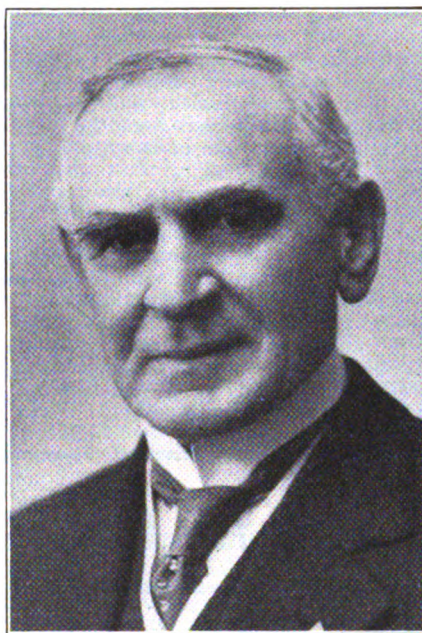
Hearings on upper lake rail rates on ore are to be resumed at Chicago March 6 before an examiner for the interstate commerce commission.

Contract for the construction of an ice breaker by the Canadian Vickers, Ltd., for the Canadian government, has

been cancelled. The ice breaker JAMES D. HAZEN, which was sold to Russia but never got farther than Cherbourg, France, has been repurchased by the

### Col. J. J. Sullivan Dies

**C**OL. JEREMIAH J. SULLIVAN, chairman of the Central National Bank Savings & Trust Co., Cleveland, died Feb. 2 following a brief illness of influenza. He was 76 years old and



COL. J. J. SULLIVAN

a veteran of the Civil war. In 1879 he was elected state senator. President Cleveland in 1887 named him state bank examiner for northern Ohio. He resigned three years later to go to Cleveland and organize the Central National bank. He served 10 years as cashier and in other offices and became president in 1900. Five years later he organized the Superior Savings & Trust Co., and was president of that. The two organizations were merged a year ago and he was elected chairman and his son, C. E. Sullivan, was elected president. Colonel Sullivan was a staunch supporter of all efforts aimed at the upbuilding of the American merchant marine.

Dominion authorities. It is said the deal saves the government \$1,000,000.

Until the seamen's act has been repealed, the Detroit & Cleveland Navigation Co. will not place steamers in operation on Lake Huron, the company recently announced. This followed a report the D. & C. line was figuring on two big vessels for the service.

Dennis Lynn, manager of the Lynn Reporting Co., Port Huron, died Feb. 11. He was born in Port Huron in 1869 and had a wide acquaintance among marine men. For a number of years he was captain of the Berry tugs at Chicago and Duluth. Five brothers survive: James and Daniel at Port Huron; Edward and George at Cleveland and Michael at Bay City.

For the first time in years and, according to President Livingstone of the Lake Carriers association, probably the last time for a long period, coal tonnage carried on the Great Lakes last season exceeded the ore tonnage. The aggregate coal figure was 26,660,652 tons and the ore total was 22,300,726 tons. In the year before ore reached 58,527,226 tons and coal 26,409,710 tons. The coal shipments last season were 22,412,380 tons of bituminous and 4,248,272 tons of anthracite.

Fire recently destroyed the anthracite coal shed of the Milwaukee Western Fuel Co. at Sixth and Canal streets, that city. The blaze started in the engine room and the loss is estimated at \$150,000 to \$200,000.

Capt. Ben Broderick, of the Great Lakes Steamship Co., in charge of the company's fleet at Buffalo, recently underwent an operation for an attack of stomach trouble.

Capt. Daniel Buie, commander of the steamer CAPT. THOMAS WILSON of the Wilson Transit Co. and master of vessels of that fleet since its organization 32 years ago, has been made an inspector and Capt. Olaf Skuggen has been appointed master of the Wilson. J. V. Hallidin is the chief engineer of the ship.

The FRANK E. KIRBY, for 30 years in the Detroit-Sandusky trade, has been bought by William Nicholson of the Nicholson Transportation Co., Detroit, from Ashley & Dustin, Detroit, and may go back into the run from which she was taken in 1919 as a result of



the provisions of the La Follette seamen's bill.

\* \* \*

The United States lake survey reports the monthly mean stages of the Great Lakes for the month of January, 1922, as follows:

Lakes	Feet above mean sea level Dec. 1921	Jan. 1922
Superior	601.99	601.62
Michigan-Huron	579.54	579.32
St. Clair	574.58	573.93
Erie	571.71	571.51
Ontario	244.83	241.73

Lake Superior is 0.37 foot lower than last month, 0.46 foot lower than a year ago, 0.52 foot below the average stage of January of the last 10 years. Lakes Michigan-Huron are 0.22 foot lower than last month, 0.60 foot lower than a year ago, 0.70 foot below the average stage of January of the last 10 years. Lake Erie is 0.20 foot lower than last month, 0.48 foot lower than a year ago, 0.21 foot below the average stage of January of the last 10 years. Lake Ontario is 0.10 foot lower than last month, 0.81 foot lower than a year ago, 0.76 foot below the average stage of January of the last 10 years.

39 Broadway, New York, ship brokers.

\* \* \*

A permanent service from Boston to Genoa and other Italian ports may follow the recent sailing from Boston of the Italian steamer *MATILDE PEIRCE*. She is one of the fleet of the *Sicula Americana*. A. C. Lombard's & Sons, Boston, are the agents for this company.

\* \* \*

From the intercoastal service of the Nawsco lines, the steamer *SPRINGFIELD*, will soon be redelivered to the shipping board. Her place in the Nawsco service has already been taken by the steamer *BLUE TRIANGLE*.

\* \* \*

Recently the North Atlantic & Western Steamship Co., Boston, purchased the American steamer *WABASH*, and it is understood that she will soon be placed in service.

\* \* \*

The Commercial Maritime Co., Boston, plans to inaugurate a direct steamer service between Portland, Me., and New York. An oil burning, lake-type shipping board vessel, with a carrying capacity of 2500 to 3000 tons is under consideration and probably will be secured.

\* \* \*

The schooner *ROMANCE* was recently sold at United States marshal's sale at New Bedford to Morris M. Sederhom of that city, who bid \$6750.

\* \* \*

Crowell & Thurlow, Boston, have increased the number of steamers in operation in their intercoastal service, having secured the steamers *TIGER* and *EAGLE* from the Standard Transportation Co. This will make a fleet of six 10,000-ton steamers in this service.

## In the North Atlantic

IN THE spring, Boston is to see the resumption of the old Boston Queenstown-Liverpool service of the Cunard line. It is planned to have the new steamer *LACONIA* inaugurate this service. She is a 20,000-ton ship and equipped with every latest facility for the convenience and comfort of passengers.

\* \* \*

Grain in larger quantities than has been shipped from Boston in years is now flowing through the port and steamers, which until recently have found it necessary to go to other ports to complete loading, now find it possible to secure full cargoes. A big fleet of steamers is now on the way to Boston with cargoes valued at many millions of dollars.

\* \* \*

An announcement has recently been made by the United Fruit Co. that a reduction on practically all commodity rates to Havana, Cristobal and Port Limon has been made by the company.

\* \* \*

The following elections to the New York Maritime Exchange were made recently: Daniel C. Colesworthy, Munson Steamship Co.; Frank Derito, Gulf Steamship Corp.; Clement L. Despard, Despard & Co.; Capt. John K. Hanson, Anchor Stevedoring Co.; John E. Holt, Holt & Bloomfield; Hugo Hornbostel, Junius S. Morgan, J. P. Morgan & Co.; William J. O'Toole, William J. O'Toole Stevedoring Corp. and John J. Stanton, Maritime Stevedoring Co. Inc.

\* \* \*

The Radio Corp. of America's radio station in New London, Conn., has been moved from its former location to the new state pier at New London. The station forms part of the company's chain of coastal units and its improved location permits future expansion. The station call remains "WLC."

\* \* \*

Boston's overseas trade is showing a decided improvement as a direct result of the efforts of the Maritime association of the chamber of commerce. The activity of this organization, less than a year old, is having its effect.

Port statistics indicate that the long period of depression in overseas trade is nearly at an end and a steady improvement will follow. More steamers arrived at Boston one day in February from foreign countries than had been reported for one day in many months previous. Importations from transatlantic countries, South America and the Far East are increasing, and the rise in foreign exchange has been the signal for a marked increase in exports.

\* \* \*

Incorporation of the Irish American Line, 82 Beaver street, New York, under the laws of Delaware with \$500,000 authorized capital, is taken as the forerunner of freight and passenger service to operate shortly between New York and ports of Ireland. Option has been taken on the steamer *New York*, now owned by Worden & Co.,

## From the South Coast

A FEW stray bales of tobacco, returned for some reason or other, come into Norfolk port from Europe, but no such amount as was brought in recently from Hamburg by the British steamer *ALNESS* has arrived within the memory of anybody in the shipping business at the port. The *ALNESS* had aboard 638 tons of tobacco. Basler & Co., agents for the ship, stated that the tobacco was of a special grade and that the market price in Europe had declined below the price obtainable in the United States.

\* \* \*

Marine and business interests of Newport News are leaving nothing undone to secure a wider and deeper channel to the sea, and it is reported the government will make a survey in the near future to determine just what is necessary to improve the channel.

\* \* \*

Largest and third largest of the world's fore-and-aft rigged sailing vessels, the schooners *WYOMING* and *RUTH*

*E. MERRILL*, respectively, were among recent arrivals at Hampton Roads to load coal. Both are sixmasters and, with one other, are the only vessels of this type now afloat. The *WYOMING* can carry more than 6000 tons of coal, her cargo capacity being greater than that of most of the steamers which enter Norfolk. She is of 3730 gross tons, considerably larger than the *MERRILL* and some 400 tons greater than the second of the six-masters, the *EDWARD J. LAWRENCE*. Though at one time there were nearly a dozen six-mast American schooners in trade, they came to various ends, and none has been built in several years. The only seven-mast vessels ever constructed, the *THOMAS W. LAWSON*, was wrecked a number of years ago on the Irish coast.

\* \* \*

A total of 567 ships, aggregating 520,077 tons, make Norfolk their home port, according to the quarterly tonnage report issued at the customs house. The report leaves Hampton Roads with four more ships than in September, but with



an aggregate of 8371 tons less. The last report showed more than 1000 ships had made Norfolk their home port during July, August and September. This was caused by the large number of shipping board vessels which had been sent to be laid up or allotted to Hampton Roads companies.

J. F. Kenneally, master of the schooner *BLANCHE C. PENDLETON* has filed libel in the federal district court at Norfolk against the steamship *I. C. WHITE*, asking \$180,000 damages. It is charged the schooner was sunk and the cargo of lumber damaged by collision with the *I. C. WHITE* in a fog 30 miles north of Cape Hatteras on the morning of Jan. 21, 1922, and that the collision was the fault of the master of the steamer.

Recommendations of the Hampton Roads Port commission to the Virginia general assembly for the creation of a permanent state port commission of three members have been incorporated in a bill which now is pending in the assembly.

Bids for dredging the channel at the mouth of the Onancock river to a depth of 9 feet, at low water, will be opened at the office of the U. S. district engineer, at Norfolk on Feb. 23.

The shipping board steamer *MORITZ* has been ordered sold by the United States marshal, at Norfolk, the order being filed by Federal Judge D. Lawrence Croner. This order grew out of the libel of *Frigorigoco Armour De La Plata* for \$250,000 against the United States as owner of the *MORITZ* for damages to goods shipped on the steamer.

The Emergency Fleet corporation is beginning to see the result of the improved service it is rendering cotton shippers out of Gulf ports, Vice President Love de-

clared recently. Bookings of this cargo in that district, he added, are showing a marked improvement for American ships.

For the extension of its shipbuilding and ship repairing facilities, the Todd Shipyards Corp. has acquired the realty holding of the Mobile Shipbuilding Co. at Mobile, Ala. The Todd corporation is the largest ship repair organization in the world and has plants in New York, Brooklyn, Hoboken, Tacoma and Seattle. It operates a total of

23 drydocks and owns the only private graving docks in the port of New York.

Doubling of its service between New Orleans and the east coast of South America and the opening of a passenger service in that trade, has been announced by the Mississippi Shipping Co. The announcement followed a conference between officials of the company, representatives of the shipping board and officers of the American Coffee Roasters' association.

## Along the Atlantic Bays

**F**IRE of mysterious origin Feb. 8 destroyed the steamship *NORTHERN PACIFIC*, speediest American vessel, off Cape May where she sank ablaze from stem to stern. She was on her way to the yard at Chester, Pa., of the Sun Shipbuilding Corp. to be repaired for the Admiral line, which recently had acquired her. She was to be renamed the *H. F. ALEXANDER*.

Four of the Sun company's force were lost but all of the *NORTHERN PACIFIC*'s crew were saved.

The coast guard cutter *KICKAPOO* stood by as the great vessel plunged into the sea while the tanker *HERBERT G. WYLIE* and the steamer *TRANSPORTATION* picked up the crew of the burning ship. The *NORTHERN PACIFIC* was commanded by Capt. William Lustie who had charge of her during her war service as a transport.

The Admiral line paid the United States shipping board \$1,000,000 for the vessel, which was to be used in Pacific coastwise service in a run with the *RUTH ALEXANDER*, ex-CALLAO. The *NORTHERN PACIFIC* was built, with her sister ship, the *GREAT NORTHERN*, by the William Cramp & Sons Ship & Engine Building Co., for western railroad interests to be run between Astoria and San Francisco.

She was 525 feet long overall, 63 feet molded beam and 50 feet 6 inches deep to the A deck. She was commandeered by the shipping board during the war, turned over to and operated by the navy and then returned to the board. She could make 23 knots.

Service between Philadelphia, Genoa and Tangiers is being operated by the Algerian-American line, with its agency at Philadelphia handled by the Hudson Shipping Co. This is a new run of the line which has 20 freighters.

A new run is being operated by the Ward lines between Philadelphia and Havana and Mexico ports. T. H. Warren & Co., have been made agents for the company.

During a fog in Delaware bay recently the Atlantic Refining Co.'s tanker, *J. C. DONNELL*, largest of the fleet, went ashore at Dan Baker's shoals with little damage.

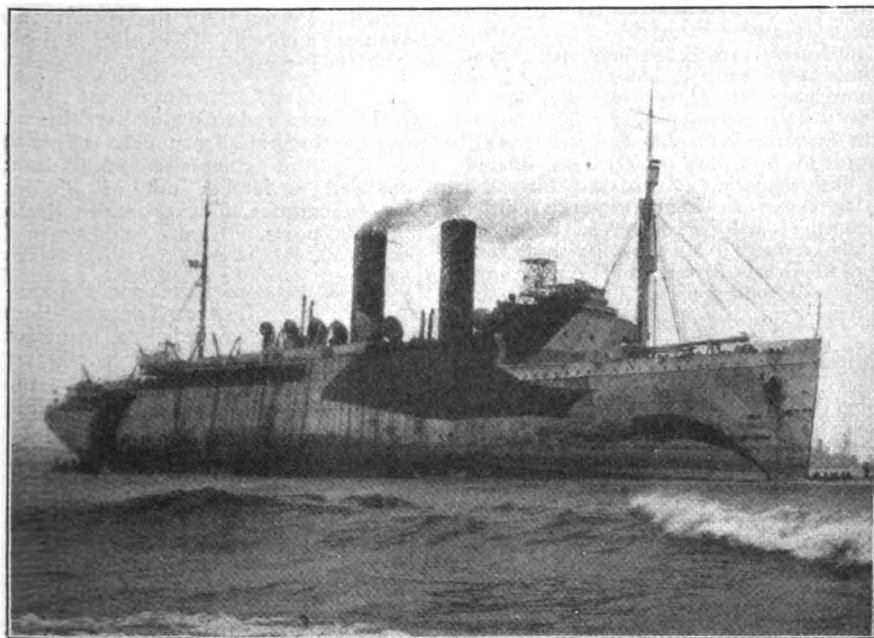
The Sun Oil Co.'s tank steamship, *PARAGUAY*, recently was drydocked at the Chester, Pa., yard of the Sun Shipbuilding Co. for painting and repairs.

Philadelphia steamship offices report transatlantic bookings are particularly numerous while transpacific tours are fewer. There has been a noticeable increase in Mediterranean voyages. According to representatives of the International Mercantile Marine Co., at Philadelphia, transatlantic business looks brighter than at any time since before the war.

The most significant feature of the coastwise trade at Philadelphia during January was the increase in the regular line ships arriving and clearing. The total in that month was 126 vessels with a tonnage of 266,378 as against 73 in January, 1921 with a tonnage of 148,794.

In the Delaware river the following gas buoys have replaced the winter buoys: Deep Water Point Range, gas buoy, 2D; Listons Range gas and bell buoy, 2L.; and Ben Davis Point Shoal gas and bell buoy, 16.

With the coming of spring, Boston is to see the resumption of the old Boston



©Kadel & Herbert

THE ONLY ACCIDENT TO THE NORTHERN PACIFIC DURING HER WAR SERVICE IS SHOWN ABOVE WHEN SHE GROUNDED IN NEW YORK HARBOR

Queenstown-Liverpool service of the Cunard line. It is planned to have the new steamer *LACONIA* inaugurate this service. She is a 20,000-ton ship and equipped with every latest facility for the convenience and comfort of passengers.

\* \* \*

Four new services have been established out of Philadelphia. The Black Diamond line has four sailings monthly for Antwerp and Rotterdam. The Hudson Steamship Co. is operating direct to London, Hull and Leith, eliminating Baltimore and Norfolk. Irish ports are to be connected with Philadelphia by a new line operated by Moore & McCormack and the Luckenbach line has a direct sailing to Pacific coast ports.

\* \* \*

The American steamer *CATHERINE* from Santo Domingo and Cuba and the Swedish vessel *ITALIA* from Cienfuegos arrived in Philadelphia recently as the first of 17 vessels carrying sugar. The total amount of the movement is 200,000,000 pounds. The other ships in the trade are *DANEHOLM*, *ELSWICK PARK*, *NORDHAV*, *TONJER*, *FORDONIAN*, *ANNA MAERSK*, *GUDRUN*, *EVEREST*, *MUNARIES*, *MUNWOOD*, *COROZAL*, *ST. MARY*, *HALLEJERD*, *MONGOLIA* and *GOTHIA*.

\* \* \*

Recently the *VIRGINIAN* of the United American lines made an average speed

of 15 knots between the Delaware breakwater and Reedy island, a distance of 57 miles. The next afternoon she sailed from Philadelphia for Pacific coast ports.

\* \* \*

In her recent trial trip off the Delaware capes, the *PENNINSULA STATE*, last of the 535-foot vessels built by the New York Shipbuilding Corp., developed a speed of 18.8 knots, one knot more than her contract called for. She has been assigned to the United States lines for north Atlantic passenger service.

\* \* \*

The International Mercantile Marine Co. has added the *PITTSBURGH*, an oil burner of 16,000 tons, to the service between Philadelphia, Queenstown and Liverpool. The *HAVERFORD* already has been in that service and will be continued.

\* \* \*

Breeches buoys were used by the crew of the coast guard station at Indian River, Del., in rescuing the crew of the barge *TUCKAHOE* which went ashore three miles south of Indian River late in January.

\* \* \*

After arriving from Finnish ports with a cargo of newsprint and woodpulp, the American steamship *MARGUS* has been placed in reserve at Hog Island.

## From the Northwest

ALL records for the transpacific voyage ending at any American port were broken by the government liner *PINE TREE STATE*, when she arrived on Puget sound 8 days, 19 hours and 30 minutes from Yokohama, beating the previous record of the *SILVER STATE*, a sister ship, operated on the Seattle-Oriental route, by 22 hours. Another record was made when a special train transported \$3,500,000 worth of raw silk to New York so rapidly that the silk arrived in New York 13 days and 12 hours after it left Yokohama.

\* \* \*

Steamers of the General Steamship Corp. plying between Puget sound and the west coast of South America will have good northbound cargoes for the next six months. The company has just closed a contract with Chilean and Peruvian interests for hauling 16,000 tons of ore to Puget sound, which means that its ships will each bring from 3000 to 4000 tons of the South American product each trip for the next five or six months. The cargo movement to Chile and Peru, which consists mostly of lumber, flour and salmon, will continue to be fair.

\* \* \*

Practically 40 per cent of all new business taken on by 133 mills reported to the West Coast Lumbermen's association for January was accepted for water delivery. This amounted to 25,000,000 feet for overseas.

\* \* \*

H. F. Alexander, president of the Pacific Steamship Co., has denied reports that his company has considered any

consolidation with the Los Angeles Steamship Co.

\* \* \*

The Blue Star line has dispatched the *GOthic STAR* from Glasgow for Seattle and will establish regular sailings between Seattle and other Pacific coast ports, and north Europe ports. The ships to be used have refrigerated space.

\* \* \*

Northwest cargo offerings for Great Britain and Europe have increased so that tonnage offered exceeds carrying capacity of the fleets engaged. The American Hawaiian Steamship Co. was recently forced to turn down 3000 tons offered for the steamship *MEXICAN*. Increased buying power in Great Britain is chiefly responsible and Germany is beginning to take tonnage. Most of the ships running to Great Britain and Europe are fairly well booked up until the middle of March.

\* \* \*

Mitsui & Co. are again active in the Puget sound-Oriental trade and ships flying the house flag of the company are often seen in Puget sound ports. The Yamashita Steamship Co., of Japan, is also becoming active on this route and in one week dispatched three ships with 27,000 tons of lumber, wheat and other Northwest products from Seattle.

\* \* \*

Windjammers on Puget sound are being called back again into service because of revival in the lumber business. The barkentine *ALICIA HAVISIDE*, one of the shipping board wartime wooden hulls converted into a barkentine, has made a good

record as a sailer and is again off to China with 2,250,000 feet of Washington lumber. Her sister ship, the *ANNE COMYN*, is loading a similar amount. The shipping board has turned over to the war department the steel freighter *WEST LEWARK* for use in the Seattle-Manila transport service, replacing the old *Dix*, which is outworn.

\* \* \*

Heavy importations of raw silk are noted in manifests of ships arriving at Seattle and rival companies are now racing their ships across the Pacific when they have big silk tonnage. The N. Y. K. liner *KATORI MARU*, and the Blue Funnel liner *TALTHYBIUS*, recently raced 4400 miles from Yokohama to Seattle and arrived there within one hour of each other. The two ships brought 14 carloads of silk valued at \$4,400,000.

\* \* \*

The Seattle chamber of commerce is renewing its efforts to secure building of a new cable between the north Pacific coast and the Orient. The emergency caused by the breaking of the cable between San Francisco and the Orient has caused a fresh activity in this regard. It is maintained that the cost of construction and laying will be from \$10,000,000 to \$15,000,000 less than the present cable and that communication between the two countries will be speeded up at less cost than by the present cable. The distance is one important argument in favor of the cable from Seattle. This could take advantage of the present government system to Alaska, using the same wire as far as Sitka.

\* \* \*

The steamer *ADMIRAL FARRAGUT* is being remodeled at a cost of \$63,250 by the Wallace Shipbuilding Co., Vancouver, B. C. The steamer *ADMIRAL WATSON* is to be similarly overhauled, after the work on the *FARRAGUT* is completed.

\* \* \*

Tonnage of vessels entered and cleared at Portland during 1921 showed an increase of nearly 100 per cent over the previous 12 months. Last year, 907 vessels of 2,535,338 tons entered and 904 ships of 2,554,896 tons cleared from Portland. During 1920 the entries and clearances numbered 1370 with a total of 2,772,863 tons.

\* \* \*

Following a reduction in northbound freight rates of 20 per cent effective Dec. 27, the coastwise lines have announced a further cut of 30 per cent on cargoes moving north from California ports.

\* \* \*

With the view of increasing the capacity of Pier I, the Tacoma Port commission has awarded a contract for filling in a space 300 x 60 feet which will probably be improved in the near future.

\* \* \*

The halibut catch marketed at Seattle during 1921 amounted to 11,690,700 pounds as compared with 11,966,200 pounds in 1920.

\* \* \*

Transcontinental railroads have agreed to abolish the 10-day free time on imports at Seattle but the steamship lines have not yet given their assent. Under present conditions steamship and railroad companies absorb all



the ocean terminal charges provided the cargo moves from Seattle within 10 days. The railroads are willing to extend the time a year but the water lines do not favor the change as it would extend their accounts for an unreasonable period, they claim.

To repair a break in the transpacific cable, the cable repair steamer RESTORER has put to sea from Seattle after a long period of idleness.

American ship operators on the Pacific coast decided to make a cut in wages averaging from 10 to 20 per cent effective Feb. 6. The marine engineers have agreed to the reduction and it is not expected any labor difficulties will follow. Lowered freight rates and keen competition have made reduced wages imperative, it is claimed.

Scathing arraignment of Capt. Carl R. Bissett and Chief Engineer F. C. Brown, of the Canadian government freighter CANADIAN IMPORTER, is made public in the report just issued by J. C. MacPherson, wreck commissioner, and A. P. Williamson and J. T. Edmunds, government assessors, who investigated the mishap to the IMPORTER. Bound from British Columbia to Australia with a cargo of lumber the vessel became disabled 600 miles off the Pacific coast last August and for a time was given up as lost. She eventually was towed back to port with many feet of water in the hold. The decision criticizes the master and engineer for poor seamanship and judgment and also for the reluctant manner in which they gave their evidence. The report recites that "the colossal blunder was made of

pumping out No. 2 ballast tank of 430-ton capacity in a lumber-laden vessel already listing and with a comparatively high deckload."

The port of Portland will proceed immediately with the construction of permanent controlling works in the Columbia river channel. The plans include widening the ship channel from 300 to 500 feet and building three wing dams from 700 to 975 feet in length to scour out the waterway.

About 16,000 tons of salt herring were shipped from British Columbia ports to the Orient during January and with prospects of a heavy run of fish consignments of equal volume are expected in February.

From 650,000 tons in 1917, the first full year Lake Washington canal locks were in operation, the cargo movement through Seattle's fresh water canal increased to 1,513,000 tons in 1921. The lumber movement totaled 150,000 tons last year, the inward coal movement 103,000 tons and gravel 290,000 tons.

After being used several years as a cannery tender, the old wooden American ship GLORY OF THE SEAS is having her refrigerator plant dismantled at Tacoma. The future of the famous craft is uncertain. She was the last ship constructed at the yards of Donald McKay at Boston. She was built in 1869 and has many splendid sailing records to her credit, one of the best being 35 days between Australia and San Francisco.

central office has denied the Berlin branch of the Dollar firm the right to occupy property it has just purchased for approximately \$220,000. The property is the former home of Prince Gebhart Blucher, who is not allowed to dispose of his property.

James Rolph Jr., & Co., San Francisco, have purchased all the property of the Six Minute Ferry Co., Vallejo, operating ferries on San Francisco bay. According to announcement the new owners will maintain a ferry service between San Francisco and Oakland. The deal involves \$1,450,000.

The Mexican States line started service into and out of San Francisco in January with the steamer CHIHUAHUA. Six steamers are being placed in the run via San Pedro. These steamers are of 1000 tons each, with accommodations for 110 passengers.

The former German ship TCHURBECK has been reconditioned at the Barnes & Tibbetts yards in Oakland, after being in the water continuously for eight years. She was one of the German ships interned at Santa Rosalia during the war, and was purchased, with several others, by the Robert Dollar Steamship Co., and will be placed in the lumber service between Northwest coast ports and China.

George E. Billings has purchased the steam schooner THOMAS ROLPH from Hind, Rolph & Co., and has had her reconditioned at the Main Iron Works, San Francisco.

When the whaler HERMAN, owned by H. Liebes & Co., clears from San Francisco for the Arctic this spring, on her annual cruise for furs, she will be equipped with a new 250 horsepower diesel engine, which will be carried "farthest north" for this type of motor.

The steamer BLUE TRIANGLE is to replace the steamer SPRINGFIELD in the intercoastal service of the Nawsco line, the latter having been withdrawn for service on the Atlantic coast.

The U. S. S. TAMORA, formerly the BARTOLME, has been awarded to the coast guard service on the Pacific and will be stationed in Los Angeles harbor. The U. S. S. CAHOKIA also has been sent to the West coast, to be stationed at Eureka. She was formerly the BAY-SIDE.

The propeller of the British steamer NICTHEROY, broken by a log on the way down the Columbia river, was repaired in record time by the Bethlehem Shipbuilding Co.'s yards on San Francisco bay, in February. The ship, cargo and all, a total weight of 14,660 tons, was placed in drydock and three propeller blades replaced in 20 hours. Salt water lines were connected with the ship's refrigerating system while she was in drydock, so as to preserve her 7000 tons of perishable cargo, and the same temperature maintained in the hull in drydock as while at sea.

## On Californian Shores

STEAMER MANGANUI will go into Australian service of the Union line this spring, replacing the MARAMA, which cleared from Wellington in January for San Francisco. The MANGANUI has been converted to an oil burner and will be one of the best equipped steamers in the Australian service.

Entry of the Ocean Motorship Co. into coastwise service on the Pacific is announced with three motorships in service between Columbia river ports, San Francisco, San Pedro and San Diego. These are the BABINDA, the BOOBYALLA, and the BENOWA.

Crowell & Thurlow, operators of four freighters in the intercoastal service, have joined the North Atlantic and Pacific east-bound conference. This company has only recently commenced operations through the Panama canal, and the only companies now outside the conference are the Isthmian line and the Robert Dollar Co. Both of these, however, agree to any rates established, or any changes in rates made.

The French steamer GHISLAINE, recently purchased by Oliver Olson, has arrived in San Francisco from Dunkirk. The

latest arrival is the third of the new purchases by Mr. Olson, the other two being the steamers YOLANDE and GABRIEL. All will be converted into lumber carriers for coastwise service. The GHISLAINE will be renamed WHITNEY OLSON; and GABRIEL will become GEORGE L. OLSON.

The Admiral line has closed its San Francisco-Santa Barbara run and the Santa Cruz & Monterey Steamship Co. takes over this service.

The steamers KATHERINE SUDDEN and SANTA ALICIA, recently added to the lumber fleet of Sudden & Christensen, will be operated between Grays Harbor and San Francisco, instead of running between San Francisco and San Pedro, as previously announced. The vessels have a capacity of 2,000,000 feet of lumber, and shipments will be made weekly, bringing a total of about 10,000,000 feet of lumber monthly to San Francisco.

Capt. Robert Dollar, president of the Dollar Steamship Co. has commenced an investigation of the report reaching San Francisco that the German housing

# Practical Ideas for the Engineer

## Tests Show Need for Strong Winch Motors—Filter for River Water—Measuring Bunker Fuel

**A**CAREFUL study has been completed recently by engineers covering the special conditions of service that must be met by electric motors driving winches on board ships. Among the conclusions reached are:

1. Motors, controllers, and all other electrical apparatus to be used on the decks of ships must be absolutely waterproof and able to withstand immersion without injury.
2. Such apparatus must be strong mechanically, because it is certain to be subjected to rough treatment.
3. It must be unaffected by high temperatures, so as to be able to operate continuously at full load when exposed to the heat of the tropical sun.
4. All parts must be easy of access and readily renewable so that repairs can be made at sea if necessary, with little loss of time.
5. The speed characteristics of the motors must be such that heavy loads can be handled at low speeds and light loads at high speeds.

The study was made in connection with the design of winch motors for the motorship WILLIAM PENN, now operating for the Barber line in the Far Eastern trade. The research was made by engineers of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., and the William Cramp & Sons

Ship & Engine Building Co., Philadelphia. The vessel has 11 deck winches, 10 of which are used for cargo handling and 1 for warping. Each winch is driven by a 30-horsepower, 220-volt direct current motor.

The motors have cast steel frames of the totally enclosed type and have extra heavy shafts and bearings. The frame is split horizontally in order to provide convenient access to the interior. The controllers are enclosed in cast iron cases with doors on three sides. They are operated by vertical brass handles, so arranged that each pair of winches can be operated by two men or one as desired. The necessary resistors are separately mounted in cases beside the controllers.

All openings in the motor frames and controller and resistor cases are hermetically sealed against the entrance of water. All coils are impregnated with moisture-and-oil resisting compounds; and all small metal parts usually made of steel, such as springs, bolts, etc., are of noncorrodible metal. The resistor cases have openings in order to provide ventilation during operation. The covers for these openings are raised and lowered by means of hand-wheels, and are electrically interlocked with the controllers so that the openings must be uncovered before the corresponding motors can be started. Protection against overheating is

provided by reducing the internal heat losses to a minimum and by using asbestos or mica insulation throughout. The motors are able to withstand high temperatures with no ventilation whatever.

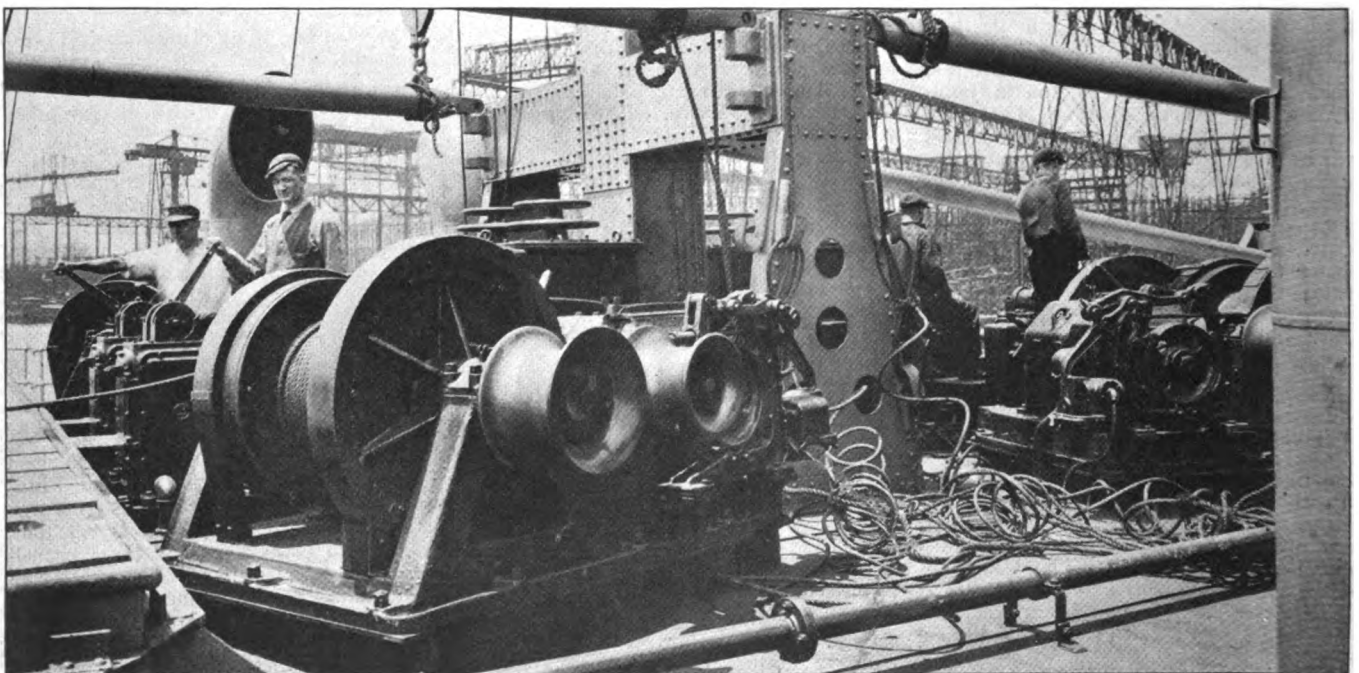
All parts are accessible, owing to the arrangements made for opening up the frames; and spare parts can be substituted quickly.

Dynamic braking is used to control the lowering of loads and to effect quick but smooth stops; and automatic mechanical brakes, which are released when the current is turned on and applied when the current is cut off, hold the loads suspended.

Tests of the winches show that the rope speeds with the empty hook are 457 feet per minute hoisting and 337 feet per minute lowering; and with 5000-pound loads, 170 feet per minute hoisting, and 470 feet per minute lowering. It was also found that these winches could handle cargo much more rapidly than the loads could be provided by the ordinary dock facilities.

The anchor windlass of the WILLIAM PENN is operated by a motor of a similar design but of nearly double the capacity.

The port of Seattle commission has passed a resolution requesting the shipping board to employ none but American citizens on shipping board vessels.



TESTS WERE MADE ON THESE ELECTRICALLY DRIVEN WINCHES ABOARD A MOTORSHIP



## Filter Removes Sediment from Boiler Feed Water

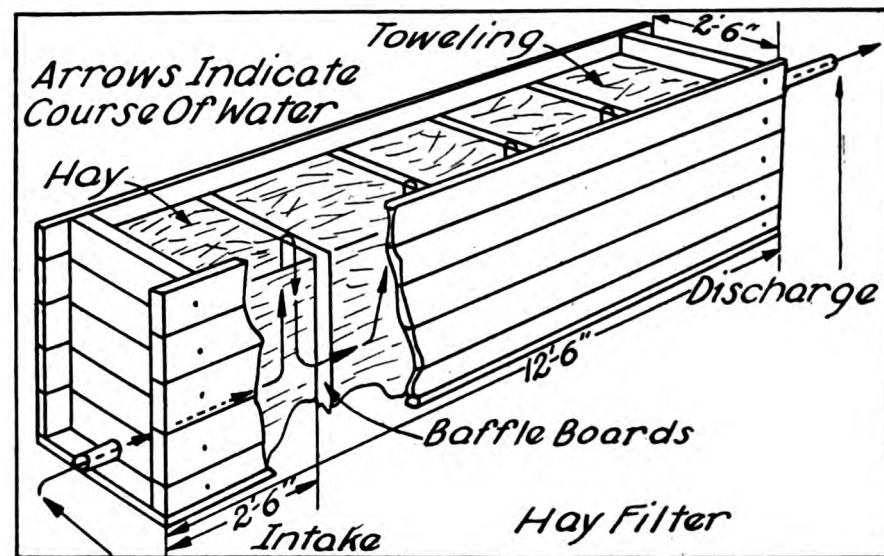
A hay filter for removing sediment from boiler feed water may easily be built. It can be used in connection with river steamer boilers as well as with boilers depending on muddy river water for boiler feed. The device, as illustrated, consists of a long rectangular wooden tank, divided into compartments by cross partitions. The feed water is made to circulate through these compartments, entering at one end of the tank and leaving at the other. In its course through the tank, the water passes through repeated filters of the hay and turkish toweling and when ready to enter the boiler has been cleaned of its mud and is in a clean condition.

In each compartment, the flow is upward. The compartments are separated by double baffle boards, the two boards being two or three inches apart, sufficient to leave space for the water to flow down between them. In all cases, the water passes over the top of the board nearest the inlet and under the bottom of the other so that the water always enters at the bottom of the next compartment. Hay is packed into each compartment up to the level of cross cleats near the top which support a screen of turkish toweling tacked to a frame. By removing the towel screens and washing with a hose the filter is cleaned. At long intervals new hay may be placed in the compartments. This device is only good to remove sediment from the water so that steam boilers will not have to be cleaned of river sediment so often and, is not intended to remove lime or other deleterious chemical ingredients from the water.

## How Ship Bunker Fuel Is Measured at Panama

Inquiries are received from time to time as to the quantity of bunker coal which a ship, in ballast, with neither cargo nor passengers, may carry through the Panama canal under the ballast rate for tolls. The *Canal Record* says that the rules are liberal in making ample provision for such space and authorize the owner of the vessel to select either of the two provisions that he may elect as set forth in the rules.

Full tolls are levied on loaded vessels and reduced tolls on those in ballast, and in order that there may be no misunderstanding vessels will be considered in ballast only when they carry no passengers and do not carry either coal or merchandise of any description in any quantity whatsoever except bunker coal or other fuel for their own use. In order that they may be entitled to claim the reduced or ballast rate the amount of bunker



DESIGN OF HAY FILTER FOR RIVER SERVICE

coal or other fuel must not exceed in volume the allowance specified in the Panama canal certificate as the deduction for bunker space.

In any case in which the amount of coal on board exceeds the deductible allowance, the vessel will be charged full tolls.

In any case in which coal be carried as a deck load, for the vessel's own consumption, or even though it be within the deductible allowance it will be subject to measurement and charge, the rate depending upon whether or not the vessel be considered in ballast or loaded.

If when carrying a deck load of coal for her own use she carries no passengers or freight, and the amount of coal on board be within the deductible allowance, she may be considered in ballast.

Vessels that wish to benefit by the reduced or ballast rate of tolls should be very careful not to carry more than the deductible allowance under the rules.

On arrival, vessels, claiming to be in ballast must have ready a statement of their coal account, to which the master may be required to take oath. In case coal be carried outside of the regular bunkers, both it and that carried in the bunkers should be piled or arranged in a fairly uniform way so that it may be readily measured.

The bunker allowance, referred to in the foregoing, is arrived at by this rule: Take three-fourths of the total volume of space of engine and boiler rooms, in cubic feet, and divide this number by 40 in the case of coal, 37.7 in the case of oil; the result is the number of long tons (2240 pounds) allowed as bunkers. For example, if a vessel had a total of 80,000 cubic feet in engine and boiler rooms, three-

fourths would be 60,000; divided by 40 would give 1500, the number of long tons of coal, divided by 37.7 would give 1592 (to nearest ton), the number of long tons of oil, allowed as bunkers.

## Occupy New Marine Plant

With the completion and occupancy of its new plant the Willamette Iron & Steel Works, Portland, Oreg., begins a new epoch in its career with a changed official personnel, as follows: A. G. Labbe, president; E. G. Pape, vice president; H. P. Carpenter, treasurer; M. H. Insley, secretary. Mr. Labbe was until recently vice president.

This pioneer company has for years specialized in marine equipment and repairs as well as in machinery and equipment for logging, mill and other industries. Its former location near the center of Portland's business district was too small to meet its growth and the new plant has been raised at the foot of Nicolai street in the north section of the industrial district on the west side of the Willamette river. All the buildings and most of the machinery are new.

The plant was planned with provision for every convenience and utility for expanding business. The site covers 12 acres with ample deep water frontage on the river providing for continuous specialized service to marine interests. The boiler shop is 130 x 220 feet and is thoroughly equipped for building the largest marine and stationary boilers. The main machine shop is modernly equipped. Several blowers and ventilators assure ample ventilation. In this plant is complete equipment for fabricating intricate hydroelectric machinery and special piping. The warehouse is four stories, 90 x 280 feet.

# Equipment Used Afloat, Ashore

Automatic Drain Valve—Depth Finder—Self-Steerer—Welding Tool

**E**LIMINATION of the possibility of damage resulting from an operator neglecting to open the hand operated drain cock after stopping a steam engine, is one of the features of an improved automatic drain and relief valve which is being distributed by the Diel-More Sales Co., Inc., Bourse building, Philadelphia. It is intended for use on all reciprocating steam equipment for draining the cylinders and steam chest. The valve is said to open upon closing the throttle and close upon opening the throttle and to take care of the overload pressure in either end of the cylinder while the engine is operating.

When the engine is not in motion, an adjustable spring lifts the disk valve permitting water to escape through by-passes to the waste line. This is said to insure proper drainage and to prevent freezing. The disk valve is seated by the pressure carried in the steam chest. When operating, any overbalance of pressure due to priming or other causes, opens the cylinder drains and relieves the steam pressure. When the objectionable pressure is removed, the drains close automatically.

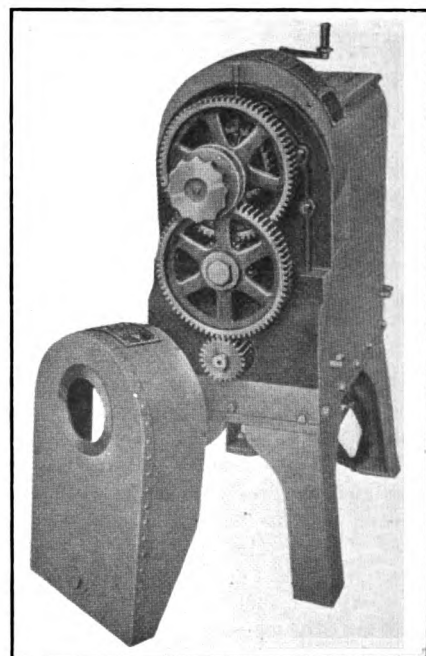
If the engine is drifting, the action of the valve is as follows: When the throttle is closed the disk valve proper is raised by the spring under the valve, thus making a direct passage

through the valve from one end of the cylinder to the other, permitting hot air ahead of the piston to be drawn into the other end of the cylinder by the vacuum created. This feature also prevents the wasting of oil by transferring it from one end of the cylinder to the other, giving a maximum lubrication of cylinders. Upon the opening of the throttle, the valve closes, eliminating any connection between the cylinder-ends.

## Improved Depth Finder Is Electrically Driven

Among the latest developments in electrically driven appliances for marine service is a rotary brake sounding machine. This device, known as the Leitz type, consists of a mechanical sounding device driven by a General Electric Co. one horsepower motor. With this machine, soundings can be taken to any depth up to 100 fathoms, without decreasing the speed of the vessel, or losing the lead and wire.

An outstanding feature of the machine, which is an improved type of a former design, is the brake action, which has been much simplified. This brake mechanism consists of a mounted shaft having a hollow portion on which the reel revolves. The brake clutch is rigidly mounted and is operated through the



ROTARY BRAKE SOUNDING MACHINE

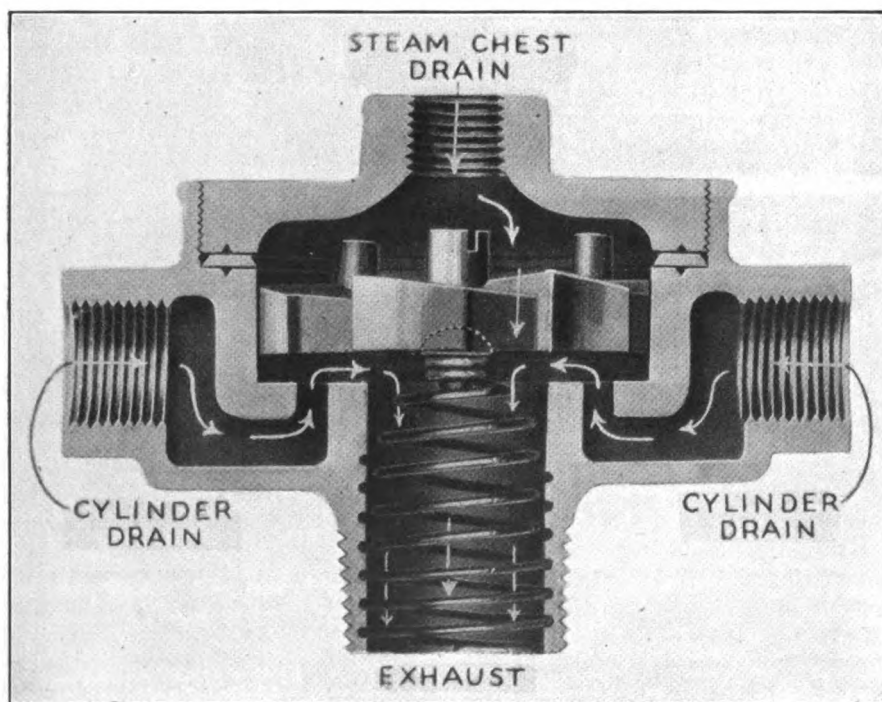
hollow portion of the shaft by means of a screw. This screw, engaging with the rolling members in the hollow portion of the shaft causes expansion and contraction of the brake clutch, which rotates with the reel and shaft while winding in.

The braking mechanism is actuated by a brake wheel on the outside of the casing and acts on the reel, gradually preventing its stopping suddenly with the consequent loss of the wire and lead. There is an indicator on the case near the brake wheel which shows which way to turn it to free the reel and let out the wire, or to brake the reel for winding.

Although normally designed for operation by a one horsepower motor, the apparatus is arranged so it can be operated manually if desired. In this case, disconnecting the motor from the gearing is unnecessary, as the motor armature acts as a flywheel. The outfit is constructed for easy inspection or repair.

## Self-Steering Apparatus Developed in Germany

Requirements of a self-steering device for unmanned rapid boats developed during the war as one of the problems of German compass builders and after numerous experiments and considerable study, Anschütz & Co., Kiel, produced an automatic compass which



A CROSS-SECTIONAL VIEW OF AUTOMATIC DRAIN AND RELIEF VALVE

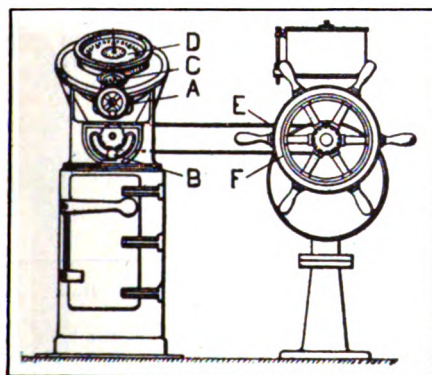


has undergone tests aboard the Danish passenger steamer KING FREDERICK VIII.

The manual work done by the helmsman is incorporated in the new compass in even greater accuracy and a saving in wages and motor power is credited to the steering machine. However in cases of emergency, the pilot may take hold of the wheel with automatic steering being resumed immediately on releasing the switch-lever.

A compass outfit on the improved system comprises a master compass, the readings of which are transmitted electrically to any number of compass receivers. Any receiver or secondary compass can be used to effect automatic steering by the arrangement shown in the accompanying illustration.

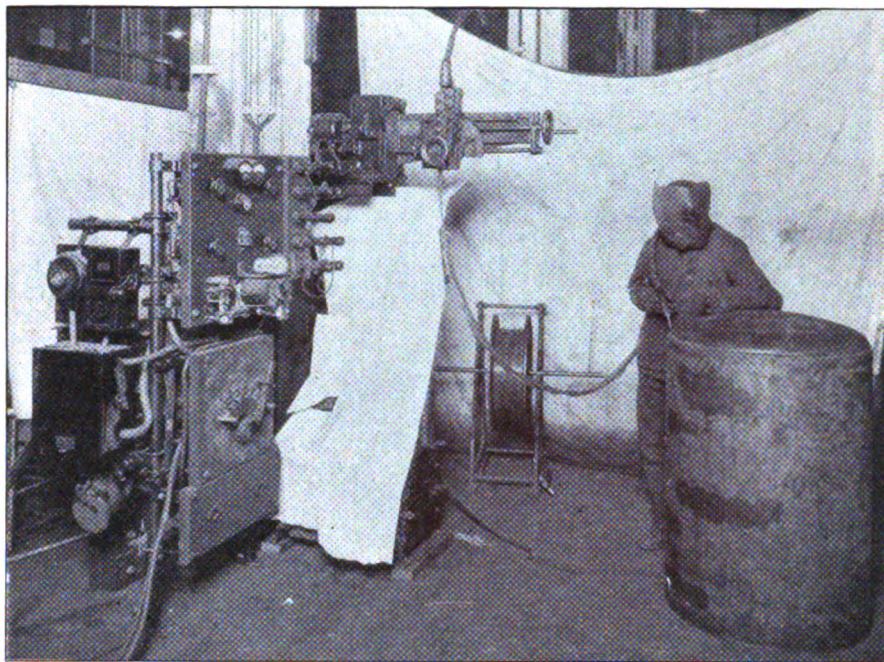
Whenever the vessel deviates from the adjusted course, a contact at the compass receiver dial closes an electric circuit causing the motor installed in the lower part of the outfit to perform a clockwise or counter clockwise rotation. This rotation is by a toothed wheel and the chain *E*, transmitted to the steering wheel *F* of the telemotor arrangement, causing the rudder to be shifted. The sense and amplitude of this motion are so designed as to cause the ship with a minimum of rudder



AUTOMATIC COMPASS

activity to return to the adjusted course or to slightly oscillate around it.

The outfit further comprises the rudder gage *C*, the adjusting wheel *A* and the clutch lever *B*. Whenever the clutch lever *B* is thrown out, the chain *E* is disengaged and the ship can, as



THE WELDING TOOL ATTACHED TO THIS SET CAN BE FED AUTOMATICALLY OR BY HAND

usual, be steered by means of the steering wheel *F* according to the compass receiver *D*. In order to pass from hand operation to automatic steering, the clutch lever is thrown in at a moment when the rudder gage marks "amidships," the compass receiver being adjusted to the course desired, which is then kept most accurately. The course can, however, be altered by turning the adjusting wheel *A* in the proper direction, each full rotation of this wheel corresponding to a change of 10 degrees in the course of the vessel.

### Develops Semiautomatic Arc Welding Tool

For use in conjunction with the automatic arc welding head, the General Electric Co., Schenectady, N. Y., has developed a semiautomatic arc welding lead, retaining the continuous features of the automatic apparatus yet allowing the operator to direct the arc as required by the conditions of the work. As shown by the accompanying illustration, the appara-

tus consists of a welding tool to be held by the operator, the tool acting as a guide for the electric wire. In the handle of the tool, which resembles an automatic pistol, is a switch for operating the welder panel control to start and stop the movement of the electrode wire.

Attached to the tool is a 10-foot length of flexible steel tubing or flexible wire guide with an adapter on the other end for attaching it to the automatic welding head. The wire passes from the feed rolls of the head into the flexible tubing and thence to the arc through a guide nozzle in the welding tool.

The field of the semiautomatic arc is in the welding of products in which the seams are of irregular contour or on large work on which the travel mechanism and necessary clamping for the full automatic welder would be complicated and costly. Edges of the seams are not prepared accurately, thus making gaps in some places and tight fits in others. The semiautomatic arc compensates for these conditions by varying the arc speed.

## Business News for the Marine Trade

Capitalized at \$25,000, the Marine Service Co. recently was organized to engage in shipbuilding, by Louis Marco, C. T. Roberts and J. E. Sheldon, at Miami, Fla.

A tract of land has been bought by Adam Heinson, at West End avenue and Johnson place,

Freeport, N. Y., where he has established a business under the name of the Heinson Boat Building & Hauling Co., Inc. A 1500-foot marine railway is being constructed.

The Red Stack Towboat Co., San Francisco, is reported planning to enter the towing busi-

ness on Puget sound.

The General Transportation Co., which was recently incorporated under the laws of Connecticut, has leased the Connecticut state pier at New London, Conn., and will inaugurate a new passenger and freight service to Charleston,



## Recent Business Changes in the Marine Trade

**C**OX & Stevens, naval architects, ship surveyors and brokers, will move on March 1 to larger offices, in the new Cimar building, 25 Broadway, New York. Their new quarters are directly accessible from the Morris street entrance, and will be sufficiently large to accommodate, in addition to the executive staff, the designing force which for several years has been maintained in Brooklyn, due to the scarcity of available office space. Cox & Stevens look forward to an active year. They have placed a number of orders for commercial vessels from their designs, and have on their boards several new projects which will probably mature in the near future. The members of the firm are Irving Cox, Daniel H. Cox, Bruno Tornroth and Thomas C. Landi.

Sudden & Christensen, Pacific coast agents for the Crowell & Thurlow fleet of intercoastal steamers, announce their removal from 110 Market street, to 230 California street, the Hind building, San Francisco, where they will occupy the entire top floor of the building.

The Pacific Mail Steamship Co. has opened offices in the Alexandria Hotel, 503 South Spring street, Los Angeles. W. A. Young, Jr., general passenger agent, directed the opening of the new passenger and

freight headquarters for the southern half of the state.

The Compagnie Generale Transatlantique, which operates the French line, has opened a branch office at 123 South Third street, Minneapolis.

The Hudson Shipping Co., Philadelphia, is the agent at that point for the Algerian-American line, according to a recent announcement.

An office has recently been established in Buffalo by the Luckenbach Steamship Co. with J. J. McTague as local manager.

McCormick & McPherson, California agents for the Osaka Shosen Kaisha, announce that Roger D. Lapham has become a member of the firm, which is to be known as McCormick, McPherson & Lapham. It also was announced that this company had been made Pacific coast agents for the Texas Oil Co. operating tankers from Texas to Pacific coast ports.

A general export and import freight forwarding, marine insurance and customs house brokerage business has been organized by L. E. Schwarzstein under the name of the Mercury Shipping Co., 17 Battery place, New York.

Establishment of its own passenger department at 17 Pearl street, New York, by the Ottoman-American Steamship Co., and the appointment of John J. Dwyer as

general passenger agent, has been announced. C. B. Richard & Co. recently handled the company's passenger business.

San Francisco offices of the North German Lloyd Steamship Co., have been opened for the first time since 1916, with Charles F. Duisenberg in charge. At Chicago, H. Claussen & Co. have taken the North German Lloyd representation.

Edwin H. Gardner has organized the Eagle Shipping Co., Inc., with offices at 7-11 Water street, for the purpose of conducting a business as freight forwarder and customs broker. It is proposed to open offices at Baltimore and other cities in the near future.

Crowell & Thurlow, Boston shipowners, have appointed Sudden & Christensen as their Pacific coast agents and have entered the coast to coast trade with six modern freighters. Branch offices have been opened in Los Angeles and Seattle, the latter in charge of B. L. McMullen, who has been transferred from Portland, Ore.

The new Northern Commercial Co. has purchased the Alaska and Yukon interests of the former company of the same name and headquarters are to be moved from San Francisco to Seattle March 1.

T. H. Warren & Co. have been made agents for the Ward lines at Philadelphia.

S. C., and other points on the Atlantic coast.

Formation of the Mallory Transport Lines, Inc., has been announced by Clifford D. Mallory of C. D. Mallory & Co. It is understood the new organization has been organized to handle steamers in a new Mediterranean service out of Philadelphia, New York and other Atlantic ports.

The Federal Barge line, Memphis, Tenn., of which J. T. Atkinson is general agent, recently purchased a site at Vicksburg, Miss., for river terminals. It is estimated \$400,000 will be expended on the work.

Recently incorporated in New Jersey with a capital stock of \$75,000, the Central Shipping & Commerce Co., Orange, Tex., plans a service between Atlantic, Gulf and Pacific ports. Some of the company's steamers are provided with refrigerating plants for the purpose of handling green fruits.

The Merrill-Stevens Co., Jacksonville, Fla., is reported considering the erection of a 10,000-ton drydock to be built some time soon.

A partnership has been formed at Boothbay, Me., by Irving W. Reed, shipbuilder, and Fred M. Cook, naval architect, the partnership to be known under the name of the Reed-Cook Construction Co. The yard of the East Coast Ship Co. has been purchased.

Capitalized at \$100,000, the Ocean Life Preserver Mfg. Co., Wilmington, Del., recently was incorporated to manufacture life preservers, etc.

The Hampton Roads-Pan American Steamship Co. recently was incorporated in Virginia with a capital stock of \$100,000, and plans to operate

steamships between Norfolk, Va., and the east coast of South America.

The Todd Dry Docks, Inc., is reported planning the erection of a new drydock section at its Seattle plant. It is estimated the addition will cost approximately \$175,000. It will be 168 feet 8 inches wide, and 90 feet long.

Carolyn & Patrick, 78 Broad street, New York, recently was organized by V. M. Carolyn and George F. Patrick, to act as steamship agents and ship brokers.

To manufacture and deal in scows, barges, lighters, etc., the Communipaw Barge Corp., 119 West Thirty-seventh street, Bayonne, N. J., recently was incorporated with a capital stock of \$100,000. Incorporators of the company are Godfrey Cohen, 256 Ft. Washington avenue, New York, A. C. Knoeller, 8 Clinton avenue, Jersey City, N. J., and Jerome E. Malino, 801 Riverside drive, New York.

The Eagle Shipping Co., Inc., 7-11 Water street, New York, recently was organized by Edwin H. Gardner to engage in business as a freight forwarder and customs broker. Offices will be opened at Baltimore and other cities.

The plant of the Southwestern Shipbuilding Co. at Los Angeles, is reported to have been taken over by the Bethlehem Shipbuilding Corp.

Capitalized at \$5,000,000, the Arthur Boynton Corp. recently was incorporated in Delaware to build boats, etc. G. L. Boynton, Albany, N. Y., represents the company.

The Seaboard Shipping Corp. recently was incorporated in Delaware with \$6000 capital stock.

The company is represented by L. B. Holly, 113 Broad street, New York.

The Gulf Coast Co., New York, has been incorporated with \$10,000 capital stock, by H. D. Carter, A. Hudson and C. McKay.

Capitalized at \$100,000, the Armenian Steamship Corp. recently was incorporated by A. Shavedian, 145 West Forty-fifth street, New York, and others.

The Sterling Steamship Co. recently was incorporated in Delaware with a capital stock of \$1,000,000.

The Columbus Marine Corp. recently was incorporated in Delaware with a capital stock of \$30,000. The company is represented by J. D. Pascale.

The Merrill Stevens Dry Dock & Repair Co. has been incorporated in Delaware with a capital stock of \$40,000.

E. J. Morrison, 53 West Jackson boulevard, Chicago, is reported to have prepared plans for the construction of a floating drydock for the Green Bay Dry Dock Co., Green Bay, Wis., to be erected at an estimated cost of \$300,000.

The Mersey & Hudson Wharfage Corp., New York, recently was incorporated with a capital stock of \$75,000, by C. E. Gardiner, W. C. Burton, D. H. Crompton. The company is represented by F. J. Knorr, attorney, Albany, N. Y.

The South Cove Dry Dock & Repair Co., 15 Exchange place, Jersey City, N. J., recently was incorporated with \$100,000 capital stock to repair boats, etc., by George L. Record, Joseph M. Mulberg, Fred A. Teese and Katherine D. Tiffany.